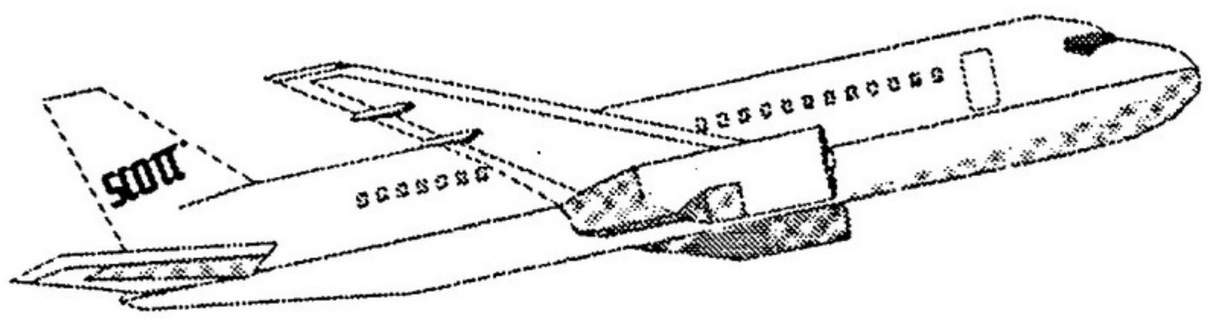
TO: HOLDERS OF COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST FOR

803662 & 803663 SERIES
ELECTRO-PNEUMATIC FLOW CONTROL UNITS

REVISION NO. 2 DATED AUGUST 30, 1994

HIGHLIGHTS

Page No.	Description of Change	Effectivity
General	Revised CMM to add 803662-02 configuration	
Title Page	Updated and revised date "803662 & 803663 SERIES" replaces individual part numbers of the Flow Control Units	All Models
Record of Revisions	Added revision number and date.	All Models
List of Effective Pages	Changed effectivity dates for all revised pages	All Models
1	Added "-02" to paragraph 1.A	All Models
3	Added "-02" to Table 1	
109 - 110	Revised test procedures in paragraphs e, i, k and n to include 803662-02	All Models
302	Added "-02" to Figure 301	All Models
305	Reworded Step 32 to include 803662-02 configuration and added item 530A callout	
401 thru 402	Formatted to comply with ATA 100, Rev. 31 Degreasing Agent (Table 401) was 1,1,1 Trichloroethane (MIL-T-81533); added non-ionic detergent to materials	All Models
714	Added "-02" to Step 46	All Models
717	Added "-02" to Step 48.T	
721/722	Reworded Step 58 to include 803662-02 configuration and added item 530A callout	
1001	Added "803662-02" to paragraph 1	All Models
1002	Added Vendor Code V72658	
1005 thru 1010	Added IPL item 2, P/N 803662-02, "EFF CODE" F Added "-00" suffix to IPL items: 50, 75, 85, 100, 115, 120, 140, 155, 195, 270, 285, 300, 305, 660, 665, 730, 780 and 785	



COMPONENT MAINTENANCE MANUAL
WITH ILLUSTRATED PARTS LIST

FOR :

803662 & 803663 SERIES
ELECTRO-PNEUMATIC FLOW CONTROL UNITS

SCOTT®

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Page T-1
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RECORD OF REVISIONS

Retain this record in the front of the manual. On receipt of revisions, insert revised pages in the manual and enter revision number, date inserted, and initials.

REVISION NUMBER	REVISION DATE	DATE FILED	BY	REVISION NUMBER	REVISION DATE	DATE FILED	BY
1	AUG 1/90						
2	AUG 30/94						

RECORD OF TEMPORARY REVISIONS

TEMPORARY REV. NO.	PAGE NUMBER	ISSUE DATE	BY	DATE REMOVED	BY

SERVICE BULLETIN LIST

NUMBER	REV	DATE INCORP	BY	NUMBER	REV	DATE INCORP	BY

LIST OF EFFECTIVE PAGES

LIST OF EFFECTIVE PAGES

803662 and 803663
COMPONENT MAINTENANCE MANUAL WITH IPL

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INTRODUCTION

This manual establishes the proper maintenance procedures which shall be followed by user maintenance, overhaul and service personnel when performing any type of service on the 803662 and 803663 Electro-Pneumatic Flow Control Units described herein.

It is the primary intent of this manual:

a. To specify proper safety regulations to be followed during performance of service on oxygen equipment used in aviation applications.

b. To establish proper sequence of operations to be performed on the defined equipment.

c. To provide the user with the data necessary to properly maintain, check, test and repair the equipment.

The following WARNINGS are presented to inform the user of this manual of the requirements which shall be adhered to when performing service procedures on this equipment. Additional WARNINGS will be found in the procedural steps in the manual.

WARNING: ANY SERVICE OR OVERHAUL PERFORMED ON THIS APPARATUS SHALL BE DONE ONLY BY THOSE FACILITIES EXPERIENCED IN, OR BY PERSONNEL KNOWLEDGEABLE IN AVIATION OXYGEN EQUIPMENT. IF NONE ARE KNOWN, CONTACT SCOTT AVIATION OR ITS DISTRIBUTORS FOR NAMES OF AUTHORIZED SERVICE CENTERS.

WARNING: ALL PROCEDURES DESCRIBED IN THIS MANUAL SHALL BE PERFORMED IN AN AREA FREE OF OIL, GREASE, FLAMMABLE SOLVENTS OR OTHER COMBUSTIBLE MATERIALS. SUCH MATERIALS, AS WELL AS DUST, LINT, AND FINE METAL FILINGS ARE ALL POTENTIAL COMBUSTIBLES WHICH MIGHT, WHEN EXPOSED TO OXYGEN UNDER PRESSURE IGNITE AND RESULT IN AN EXPLOSION AND/OR FIRE.

WARNING: DO NOT ALLOW OIL, GREASE, FLAMMABLE SOLVENTS, OR OTHER COMBUSTIBLE MATERIALS TO COME IN CONTACT WITH PARTS THAT WILL BE EXPOSED TO PRESSURIZED OXYGEN. SUCH MATERIALS, AS WELL AS DUST, LINT, AND FINE METAL FILINGS ARE ALL POTENTIAL COMBUSTIBLES WHICH MIGHT, WHEN EXPOSED TO OXYGEN UNDER PRESSURE, IGNITE AND RESULT IN AN EXPLOSION.

Verification

Section	Date
Testing and Fault Isolation	Sep 10/87
Disassembly	Sep 10/87
Assembly	Sep 10/87

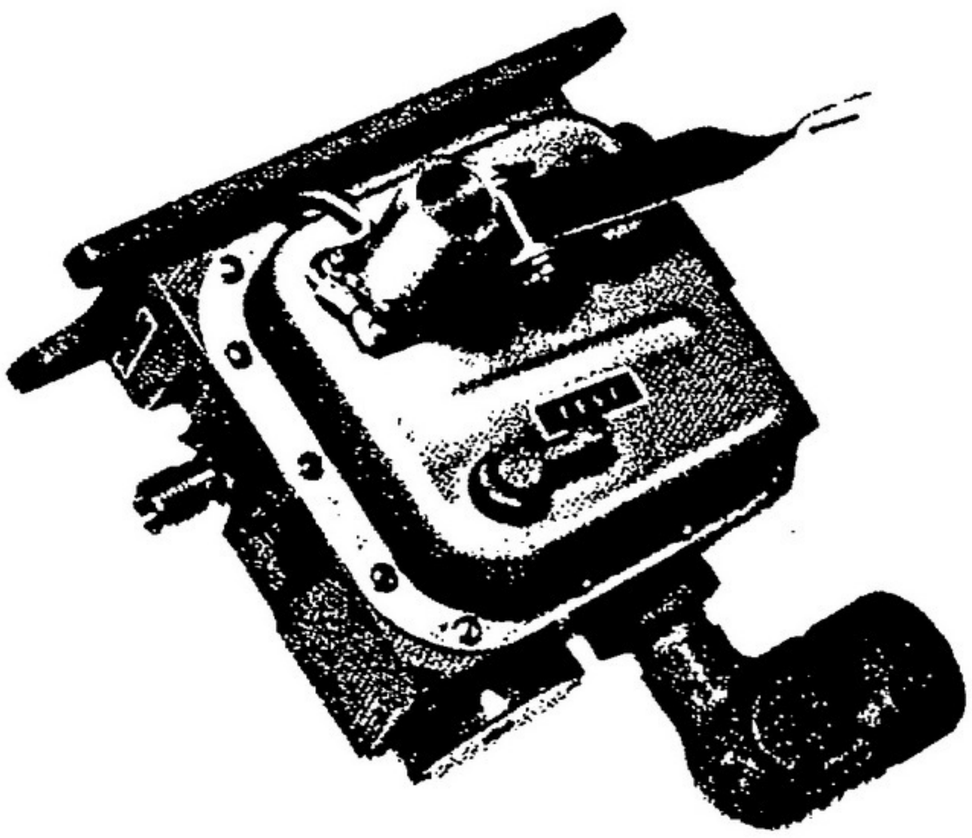
DESCRIPTION AND OPERATION

1. General

A. This manual provides overhaul instructions with illustrated parts list for Electro-Pneumatic Flow Control Units, part numbers 803662-01, -02, -04 and -13 and 803663-01 and -04 (see Figure 1).

2. Purpose of Equipment

A. The Pneumatic and Electro-Pneumatic Flow Control Units form part of the aircraft passenger emergency oxygen system when installed in a pressurized cabin. When the cabin pressure drops below a pressure equivalent to the pressure listed in Table 1, the control unit(s) automatically initiates and controls the flow of oxygen from a high pressure gaseous oxygen source to the passenger mask compartments. The system may also be activated at any altitude manually at the Pneumatic Flow Control Unit, or electrically through the Electro-Pneumatic Flow Control units.

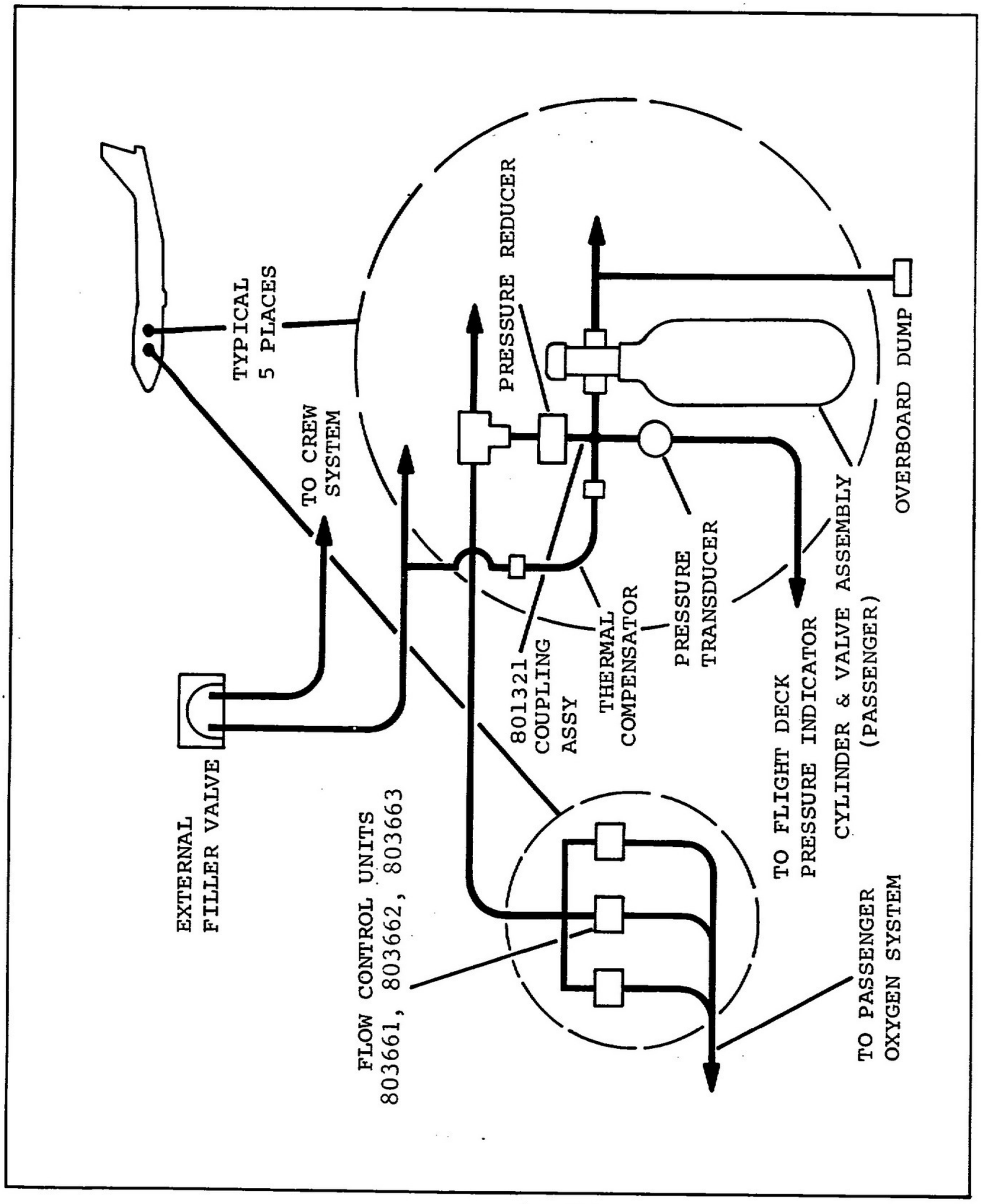


Electro-Pneumatic
Flow Control Unit
Figure 1

3. Typical Installation

A. A typical pressurized cabin installation is shown in Figure 2. An oxygen source consisting of a series of high pressure oxygen storage cylinders is connected through pressure reducers to the inlets of flow control units.

B. The control units are normally closed (OFF). In the event of cabin decompression (cabin pressure drops below pressure listed in Table 1), the aneroids



Typical Installation
Figure 2

Configuration (All Series)	Actuation Altitude	
	Feet	Meters
-01, -02 and -13	13,250 - 14,500	4038.6 - 4419.6
-04	14,000 - 15,000	4267.2 - 4572.0

Automatic Actuation Pressure Values
Table 1

within control units are preset to automatically actuate and control the flow of oxygen to the passenger emergency oxygen system. If required, the system may be actuated electrically by a crew member from the cockpit of the aircraft through control units 803662 and/or 803663, to supply oxygen to the passenger oxygen system. Switches control electrical actuation of control units 803662 and 803663.

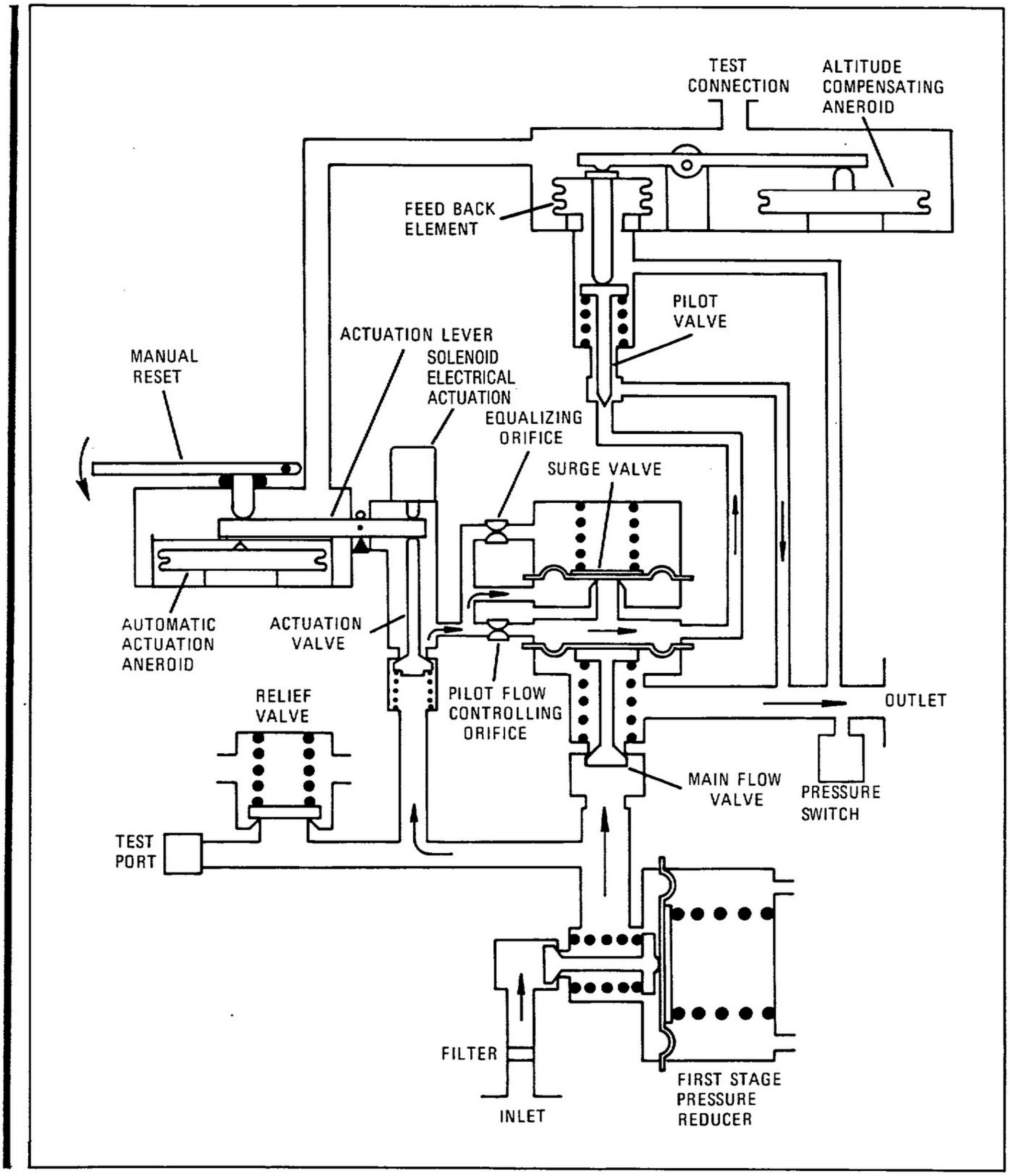
C. When control units 803661 and/or 803662 are activated, lights in the cockpit of the aircraft and in the passenger compartment are illuminated indicating presence of outlet pressure and subsequent flow. This outlet pressure indication is possible through a pressure switch in control unit 803662.

D. When oxygen is required for therapeutic reasons, closing of a switch activates control unit 803663, only, which controls oxygen flow to a therapeutic outlet located at each of the passenger mask compartments.

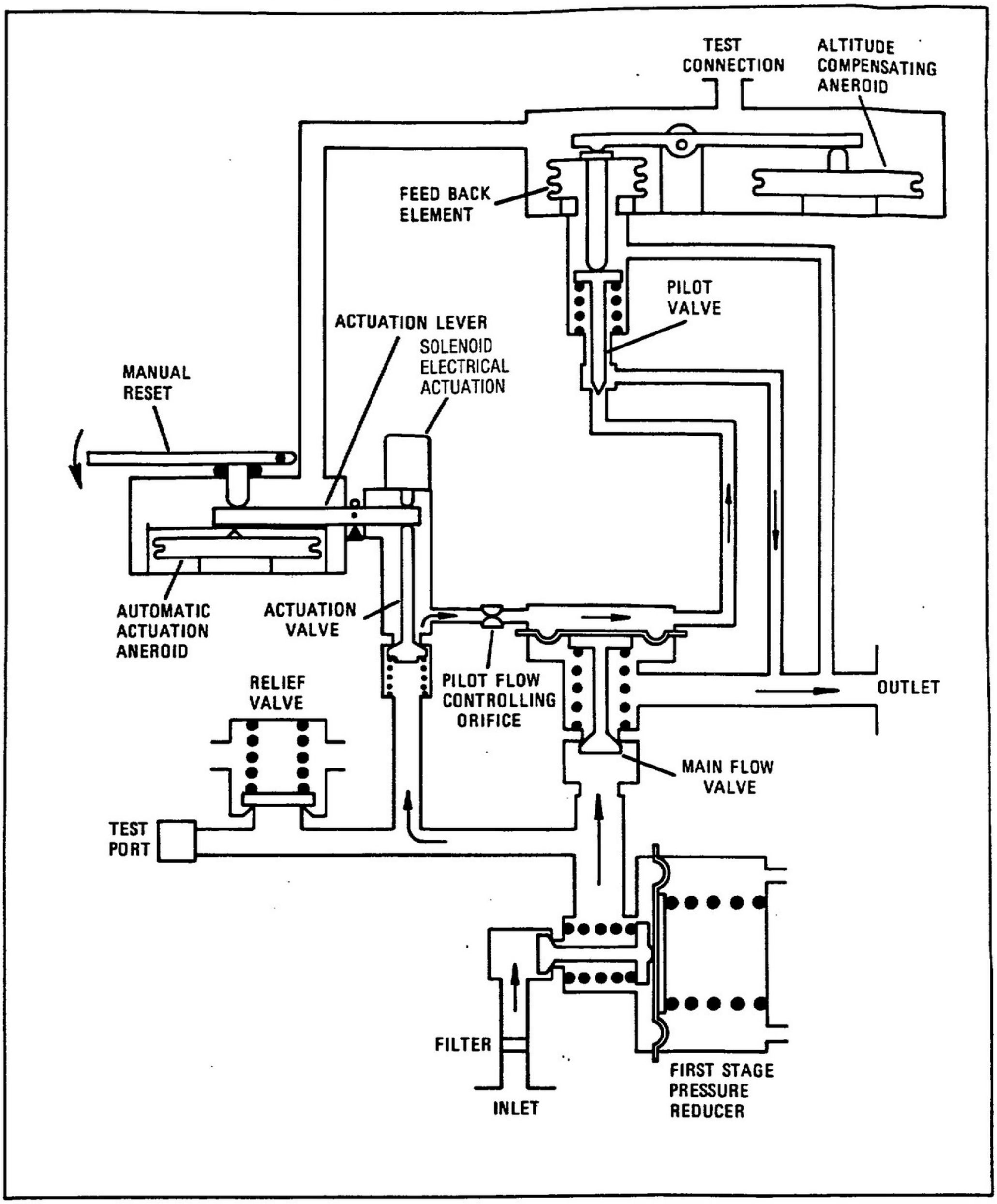
4. Operation (See Figure 3)

A. Pressure Reducer. When oxygen, at a pressure of 500 psi, is introduced at the inlet of the control unit, the first stage pressure reducer reduces the pressure to a value of approximately 120 psig. This controlled first stage pressure is routed to the pilot-operated main flow control valve and to the actuation valve.

B. Automatic Actuation. At an altitude as listed in Table 1, the aneroid in the automatic actuation mechanism develops sufficient force to overcome the tension of the leaf spring. The increased tension trips the leaf spring past center and moves the lever against the actuation valve, which then opens and allows the first stage pressure to be applied to the pilot flow controlling orifice and to the surge valve.



Schematic of 803662 Flow Control Unit
Figure 3 (Sheet 1 of 2)



Schematic of 803663 Flow Control Unit
Figure 3 (Sheet 2 of 2)

C. Electrical Actuation (803662 and 803663 only). The system may be actuated electrically at any altitude by energizing a switch in the cockpit of the aircraft. Actuation of the solenoid within the electro-pneumatic control unit overrides a detent causing positive opening and holding of the actuation valve, overriding the automatic mechanism.

D. Manual Reset. (Cabin pressure below 12,000 feet altitude for all units). After actuation, the control unit may be reset by depressing the reset mechanism. A spring loaded detent holds the units in the "ON" mode until manually reset. The actuation capability is retained after resetting.

E. Pressure Surge (803661 and 803662 units only). When the actuation valve opens, first stage pressure is admitted underneath the surge valve diaphragm. The pressure in the closed volume above the surge valve diaphragm is initally at ambient. At actuation, the sudden large pressure differential opens the surge valve and admits oxygen pressure into the pilot volume above the main flow valve diaphragm. With the surge valve open, the pressure in the pilot volume is then nearly equal to the first stage pressure. This occurs because the restriction to flow between the pressure reducer to the pilot volume is small compared to the restriction from the pilot volume to the unit outlet via the pilot valve.

This pilot surge pressure acting on the main flow control valve diaphragm opens the main valve fully and allows oxygen to flow into the outlet. This flow is sufficiently large to pressurize the aircraft system (approximately 3200 cu. in.) to a pressure of 50 psig in not more than 7 seconds. The outlet pressure can build up to a value slightly less than the first stage pressure by the amount of the bias spring force tending to close the main flow valve.

The pressure in the closed volume above the surge valve diaphragm gradually rises as oxygen flows through the equalizing orifice. After a period of 8 to 20 seconds, when the pressure differential across the surge valve diaphragm is reduced to approximately 10 to 15 psi, a spring closes the surge valve resulting in a definite restriction to flow from the pressure reducer to the pilot volume. The pilot pressure becomes equal to the outlet pressure and the bias spring closes the main flow control valve.

F. Pilot Flow. During normal operation, the pilot oxygen, (approximately 2.5 LPM) flows from the first stage through the actuation valve, through the pilot flow controlling orifice, through the pilot volume, through the pilot valve and into the outlet. The magnitude of the pilot pressure depends on the relative restriction upstream and downstream of the pilot volume. The upstream restriction consists of the pilot flow controlling orifice and is fixed. The downstream restriction consists of the pilot valve, the opening of which is controlled by the feedback element in response to the difference between the input aneroid force and the counteracting force of the outlet pressure acting on the feedback element.

G. Pilot Operation. The altitude-compensating aneroid exerts a force, tending to close the pilot valve, which is counteracted by the force of the outlet pressure acting on the feedback capsular element, tending to open the pilot valve. The pilot valve moves in the direction of the unbalanced force. If the unit outlet pressure is higher than is demanded by the feedback element, the pilot valve opening increases, the pilot pressure decreases which in turn decreases the opening of the main flow control valve and reduces the output flow. If the feedback element demands a higher outlet pressure than is present in the outlet, the pilot valve opening decreases, increasing the restriction to flow, which raises the pilot pressure and increases the output flow.

H. Altitude Compensation. From ground level to approximately 15,000 feet, the altitude compensating aneroid does not contact the force transmitting lever arm and has no effect on the unit performance.

The feedback capsular element is pre-loaded so that a constant outlet pressure of approximately 2 psig is required to keep the pilot valve open.

At approximately 17,000 feet, the aneroid contacts the lever arm and develops a force, increasing linearly with decreasing ambient pressure, which adds to the pre-load force of the feedback element, and demands a corresponding increase in the outlet pressure.

J. Relief Valve. A high flow capacity pressure relief valve is incorporated to ensure that outlet pressure can never exceed 170 psi.

TESTING AND FAULT ISOLATION

NOTE: The following test procedures apply to all configurations of 803662 and 803663 control units unless otherwise noted.

NOTE: When performing test procedures outlined in this section, close valve (SS, Figure 703), open valve (RR), and place selector valve (PP) in 800801 (up) position unless otherwise noted.

CAUTION: OXYGEN CONFORMING TO FEDERAL SPEC. MIL-O-27210, TYPE I, IS USED AS THE TEST GAS WHEN PERFORMING THE TESTS OUTLINED HEREIN. IF NITROGEN OR AIR IS USED, APPROPRIATE DENSITY CORRECTION FACTORS SHALL BE APPLIED TO THE FLOWMETER USED, TO CORRECT NOT ONLY THE EFFECT ON THE METER ITSELF, BUT ALSO THE EFFECT ON THE PERFORMANCE OF THE CONTROL UNIT WITH THE LOWER DENSITY GAS. ALL FLOWS ARE NOTED IN LPM (NTPD).

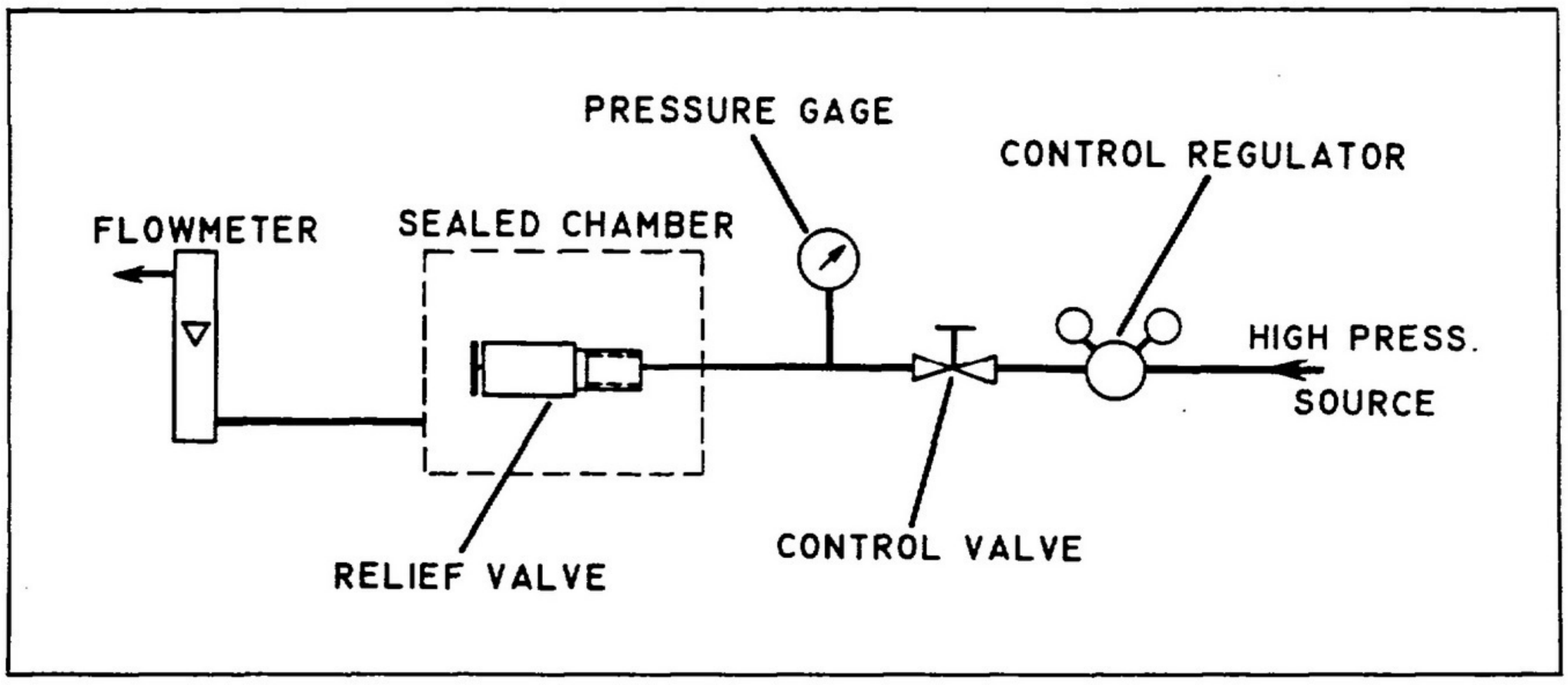
NOTE: Table 101 presents a list of standard electrical test equipment necessary for testing. Equivalent equipment may be used.

EQUIPMENT DESCRIPTION	MANUFACTURER	MODEL NO.	FSCM	REFER TO PARA.
Regulated AC-DC Power Supply	B & K Precision Products Group 6470 W. Cortland Chicago, IL 60635	1601	V08098	1.B
AC-DC Hipot Tester and Megohmeter	Hipotronics, Inc. Route 22 P.O. Drawer A Brewster, NY 10509	303A	V25284	1.C
Multimeter	John Fluke Mfg. Co. P.O. Box C6090 Everett, WA 98206	8021B	V89536	1.D

List of Standard Electrical Test Equipment for Testing
Table 101

1. Testing

A. Perform a relief valve assembly test in accordance with Figure 101 and the following procedure.



Relief Valve Test Setup
Figure 101

(1) Gradually increase pressure applied to the relief valve assembly. The relief valve assembly shall open at 140 ± 10 psig.

(2) Increase pressure to relief valve assembly until a 1270 LPM flow is indicated on flowmeter. The applied pressure required to maintain this flow shall not exceed 170 psig.

(3) Decrease pressure. Valve shall reseat at 100 psig minimum with a maximum leakage of 0.01 LPM (10 cc/min) NTPD.

B. Perform an overvoltage test on the control units using a regulated DC power supply (refer to Table 101).

(1) Apply ten 0.5 second pulses of 42 VDC with 5 second intervals between pulses.

(a) For 803662 units, apply the positive (+) lead to pin 4 and the negative (-) lead to pin 5 of cable assembly (425 or -431, IPL Figure 1). Then apply the positive (+) lead to pin 6 and the negative (-) lead to pin 8 and repeat step (1).

(b) For 803663 units, apply the positive (+) lead to pin 1 and the negative (-) lead to pin 2 of connector assembly (-430) and perform the procedure described in step (1).

(c) In neither case shall there be any failure of the components.

NOTE: Acceptable performance of the electrical components during subsequent testing shall be proof of conformance to the overvoltge test.

C. Perform a dielectric strength test on the control units in accordance with the following procedure, using an AC-DC hipot tester and megohmeter (refer to Table 101).

NOTE: This test shall precede insulation resistance test, paragraph D.

CAUTION: DIELECTRIC STRENGTH SHALL NOT BE CONDUCTED ON PRESSURE TRANSDUCER (491, IPL FIGURE 1).

(1) Using an AC-DC hipot tester and megohmeter apply the voltages shown in Table 102 between only those terminals listed in Table 102. Voltage shall be applied for one minute minimum.

(2) Upon application and removal of the above voltage, there shall be no evidence of arcing, sparking or leakage current exceeding the following:

(a) 2.0 milliamps - solenoid (pins 4 and 5) (803662 units);
(b) 2.0 milliamps - solenoid (pins 1 and 2) (803663 units);
(c) 0.5 milliamps - pressure switch (pins 1, 2 and 3) (all units).

VOLTAGE	PIN NUMBER			
	803662 UNITS			803663 UNITS
1500 VAC	9 to 5 9 to 4 9 to 3 9 to 2 9 to 1	5 to 3 5 to 2 5 to 1	4 to 3 4 to 2 4 to 1	3 to 2 3 to 1
1350 VAC	3 to 2 3 to 1			

Pin Combinations for Dielectric and
Insulation Resistance Testing

Table 102

D. Perform insulation resistance test on the control units in accordance with the following procedure, using a multimeter (refer to Table 101).

CAUTION: THE INSULATION RESISTANCE TEST SHALL NOT BE CONDUCTED ON PRESSURE TRANDUCER (491, IPL FIGURE 1).

(1) Apply 500 VDC between ONLY those terminals listed in Table 102.

(2) Using a multimeter (refer to Table 101), measure the insulation resistance. It shall not be less than the following:

(a) 200 megohms - solenoid (pins 4 and 5) (803662 units);
(b) 200 megohms - solenoid (pins 1 and 2) (803663 units);
(c) 200 megohms - pressure switch (pins 1, 2 and 3) (all units).

E. Adjust packing (685, IPL Figure 1) to restrict oxygen flow as follows:

(1) Connect assembled orifice and diaphragm assembly (675 through 710) to a controlled oxygen source.

(2) Apply 90 psi to assembly and adjust setscrew (675) until a 0.45 LPM flow, as measured on a flowmeter, is attained.

(3) Stake setscrew (675) in two places to retain setting.

F. Test pressure switch (465) actuation on 803662 units as follows:

(1) Connect a 28VDC power supply to the test stand (Figure 703) at connections (Y) and (Z).

(2) Close all valves and place valve (PP) in the down position.

(3) Connect the control unit to the test stand at connections (R), (S), and (FF) and electrical connector (Q). Light (N) shall illuminate.

(4) Open valves (BB), (EE) and (OO).

(5) Check indication on gauge (MM) and record.

(6) Using regulator (JJ), slowly induce pressure to the control unit outlet port. Light (N) shall extinguish. Note and record the pressure indication on gauge (MM) at which pressure switch (465, IPL Figure 1) activates and light (P, Figure 703) illuminates.

(7) Reduce input pressure at regulator (JJ).

(8) Slowly vent contained pressure from the system using valve (F). Light (P) shall extinguish. Note and record pressure indication on gauge (MM) at which pressure switch (465, IPL Figure 1) resets and light (N, Figure 703) illuminates.

(9) From both psia readings, subtract the room ambient pressure recorded in step (5). The resulting figures are the psig values at which pressure switch (465, IPL Figure 1) activates and resets.

NOTE: Pressure switch shall activate and light (P, Figure 703) illuminate a 7.5 $\pm$ 2.5 psig. When pressure is relieved, pressure switch shall reset and lamp (N) shall illuminate at 0.5 $\pm$ 0.5 psig.

(10) Close valves (F), (BB), (EE), and (OO).

G. Functionally test the assembled control unit in accordance with the following procedures.

(1) Perform an external leakage test (at simulated operating condition) in accordance with Figure 102 and the following procedure.

a. Place the unit in a sealed chamber and apply 2000 psi to the inlet and 65 psi to the outlet for five minutes.

b. External leakage shall not exceed 0.010 LPM (10 cc/min) as indicated on flowmeter.

(2) Perform an internal leakage test (at non-operating conditions) in accordance with Figure 103 and the following procedure.

a. Apply 2000 psi to the inlet.

b. Leakage shall not exceed 0.005 LPM (5 cc/min) as indicated on flowmeter either during or at end of test.

(3) Perform electrical operation of 803663 control units as follows:

a. Connect control unit to test stand (Figure 703) at connections (R) and (S) and electrical connector (Q) and close all valves.

b. Switch 28VDC power supply on.

c. Induce 500 psi, as indicated on gauge (I), to the system using regulator (X).

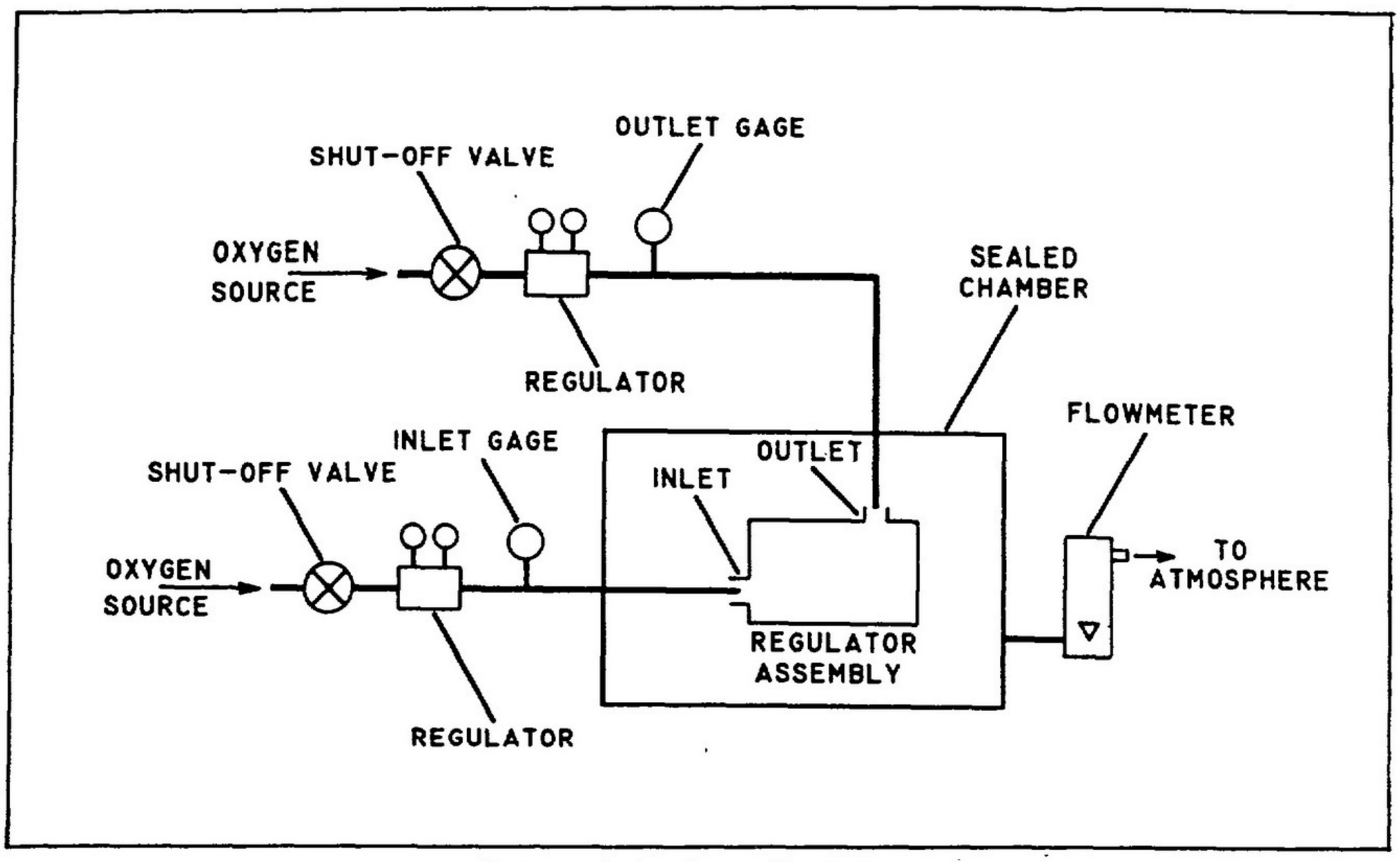
d. Open valve (C).

e. Energize solenoid by placing switch (O) in the on position momentarily. Unit shall activate.

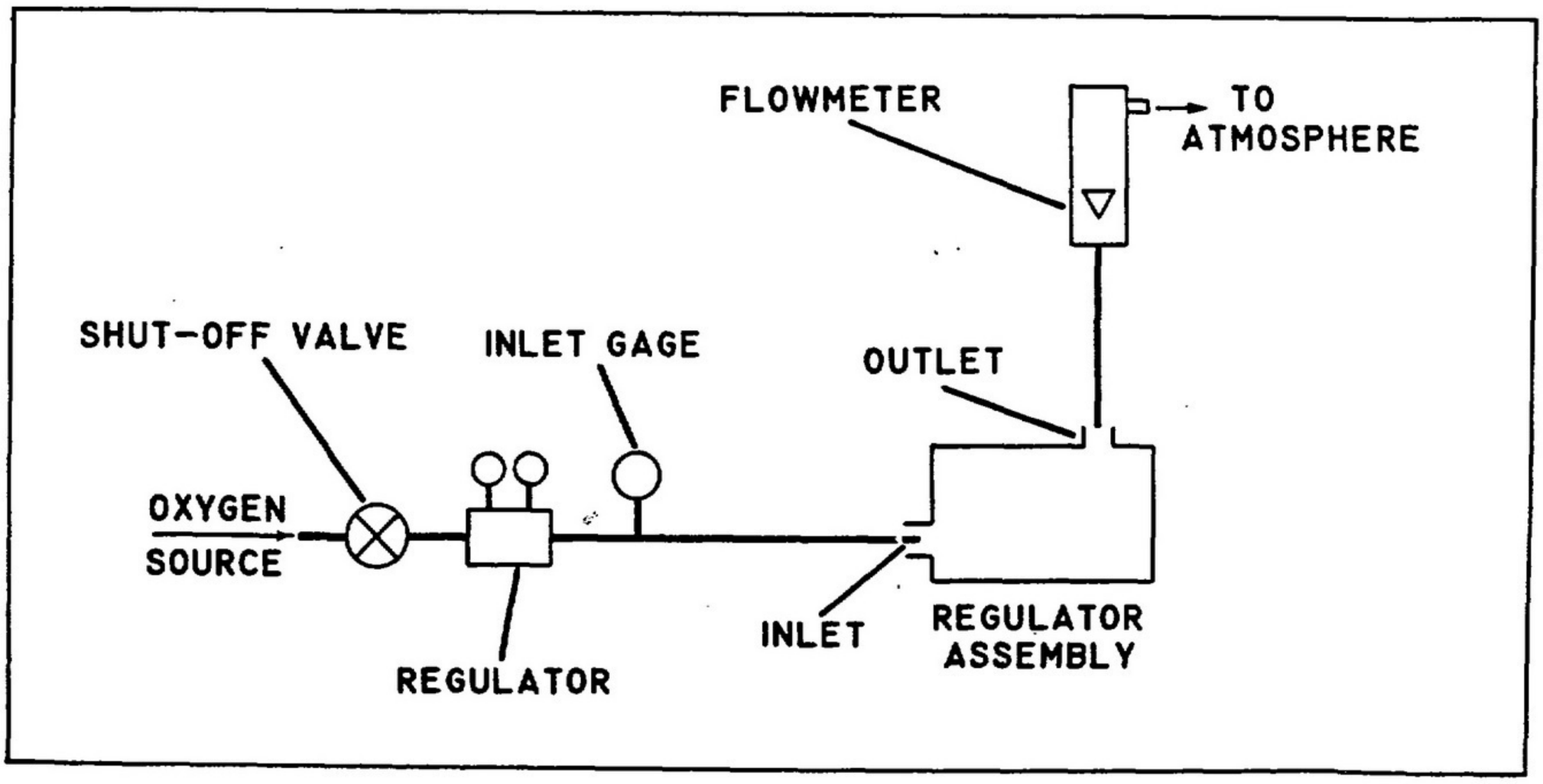
f. Open valve (F). Gas shall flow from high flow port of test stand.

g. Depress lever assembly (70, IPL Figure 1) (button (75) on 803662-13) to reset control unit. System shall exhaust.

h. Exhaust system pressure through regulator (Figure 703).



External Leakage Test Setup
Figure 102



Internal Leakage Test Setup
Figure 103

(4) Perform electrical operation of 803662 control units as follows:

a. Connect control unit to test stand (Figure 703) at connections (R), (S) and (T) and electrical connector (Q) and close all valves.

b. With 28VDC power supply on, light (N) shall illuminate.

c. Induce 500 psi, as indicated on gauge (I), to the system using regulator (X).

d. Open valve (AA), place valve (PP) in the up position and switch (QQ) in the down position.

e. Place switch (L) in the up position.

f. Open valve (E) until 10,000 feet altitude is indicated on altimeter (K).

g. Actuate unit by placing switch (O) in the up position momentarily. Unit shall surge, light (N) shall extinguish and light (P) shall illuminate.

h. Place switch (QQ) in the up position momentarily and reset the control unit by depressing lever assembly (70, IPL Figure 1) (button (75) on 803662-13).

i. Open valve (C, Figure 703) and vent contained pressure through valve (F).

j. Light (P) shall extinguish and light (N) shall illuminate.

k. Close valve (E), open valve (D) and return system to ground level.

l. Place switch (L) in the down position, vent inlet pressure using regulator (X) and remove control unit from test stand.

(5) Perform an altitude compensated regulation test in accordance with Figure 703 and the following procedure.

a. Open valve (C) and (AA). Close all other valves. Turn switch (L) off.

b. Connect the control unit to connection (R) and connection (S) of the test stand. Attach vacuum tubing (T) to the test connection provided on the cover of the control unit.

c. Turn switch (L) "ON".

d. Slowly turn on external oxygen supply and regulate with regulator (X) for 500 psi indicated on gauge (I).

e. Adjust valve (E) until the control unit actuates. The control unit shall surge at an altitude of 13,250 to 14,500 feet for -01, -02 and -14 units, and 14,000 to 15,000 feet for -04 units, as indicated on altimeter (K). For 803662 series, the control unit shall surge to not less than 50 psi as indicated on gauge (H), in 7 seconds, maximum. After initial pressure surge, vent pressure by opening valve (F).

NOTE: Control units 803662 series will surge audibly. Control units 803663 will click only. Flow will have to be drawn to confirm actuation (by vacuum).

f. Close valves (F) and (C).

g. Adjust valve (E) for an indication of 40,000 feet on altimeter (K). Open valves (E) and (LL). Open valve (OO) slowly. Adjust valve (F) for a flow of 25 LPM as indicated on flowmeter (G). Gauge (MM) shall indicate 44.0 to 48.0 psia.

h. Open valve (C).

i. Adjust valve (F) for a flow of 1500 LPM (150 LPM for 803662-02) as indicated on flowmeter (G). Gauge (MM) shall indicate 44.0 to 48.0 psia. Close valve (F).

j. Adjust valves (D) and (E) for an indication of 30,000 feet on altimeter (K). Open valve (F) to vent system until gauge (MM) stabilizes. Close valves (F) and (C). Adjust valve (F) until 25 LPM is indicated on flowmeter (G). Gauge (MM) shall indicate 28.1 to 37.6 psia.

k. Open valve (C) and adjust valve (F) for a flow of 1180 LPM (125 LPM for 803662-02) as indicated on flowmeter (G). Gauge (MM) shall indicate 28.1 to 37.6 psia. Close valve (F).

l. Adjust valves (D) and (E) for an indication of 20,000 feet on altimeter (K). Open valve (F) to vent system until gauge (MM) stabilizes. Close valves (F) and (C).

m. Adjust valve (F) until 25 LPM is indicated on flowmeter (G). Gauge (MM) shall indicate 12.6 to 22.0 psia.

n. Open valve (C). Adjust valve (F) for a flow of 680 LPM (75 LPM for 803662-02) as indicated on flowmeter (G). Gauge (MM) shall indicate 12.6 to 22.0 psia. Close valve (F).

o. Adjust valves (D) and (E) for an indication of 12,000 feet on altimeter (K). Open valve (F). Manually depress lever assembly (70, IPL Figure 1) or button (75 on 803662-13) on the control unit. Control unit indicator shall indicate "OFF". Close valve (F, Figure 703).

p. Adjust valves (D) and (E) for ground level.

q. Close valves (EE), (LL) and (OO).

(6) Perform a pressure and surge duration test on 803662 control units in accordance with Figure 104 and the following procedure.

a. Apply 500 psig to the inlet port.

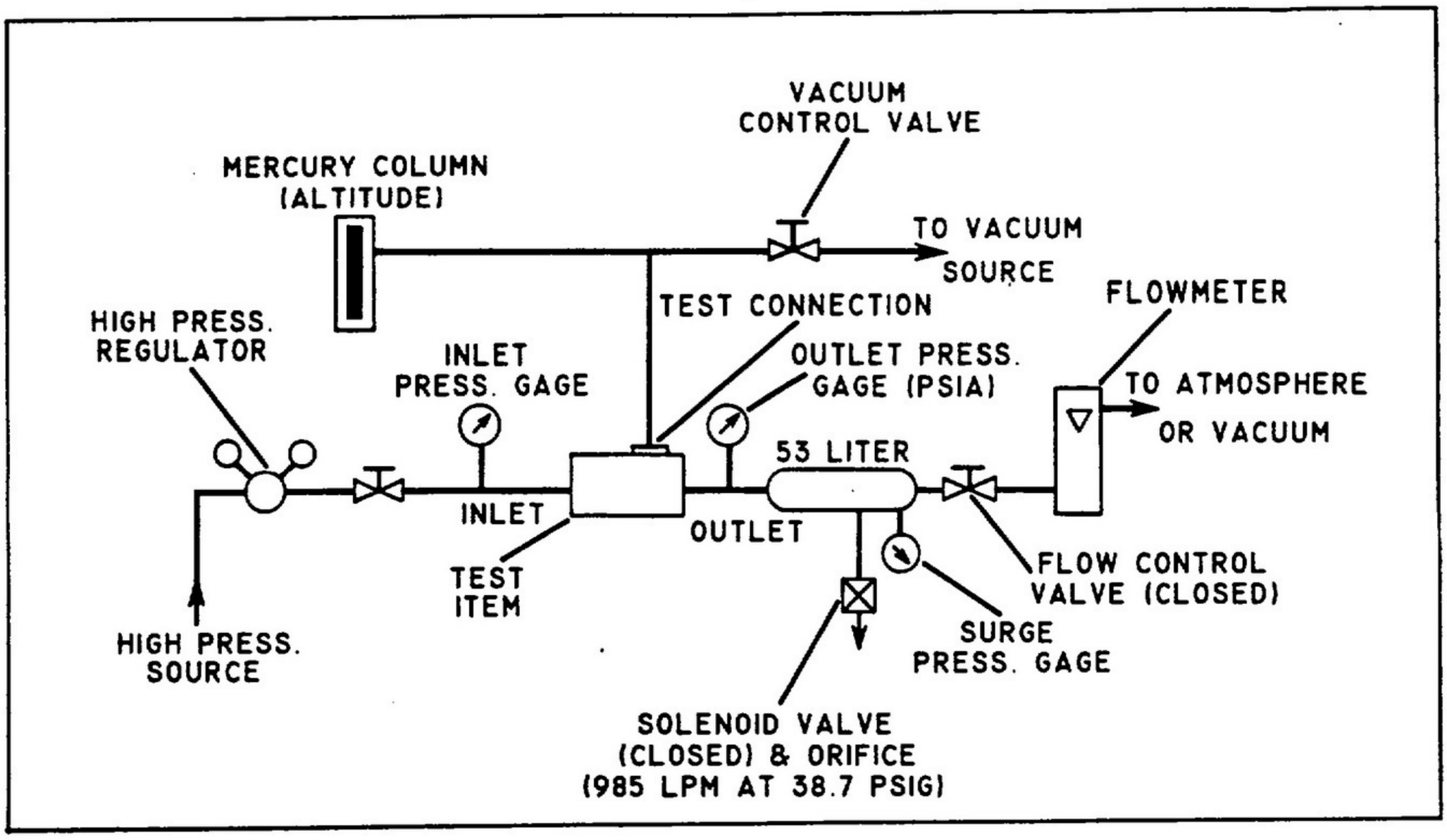
b. Place valve (PP, Figure 703) in up position, and switch (QQ) in down position.

c. Hold down the manual reset lever (70, IPL Figure 1) or button (75) (to prevent actuation) and adjust valves (D) and (E) until an altitude of 30,000 feet is indicated on altimeter (K).

d. Release manual reset lever and allow unit to actuate. When surge pressure reaches 50 psig, solenoid valve (VV) opens automatically and flow exhausts from outlet (XX).

e. Time the duration from surge initiation until return of outlet pressure to the regulated pressure for 30,000 feet, [28.1 to 37.6 psig as indicated on gauge (H)]. Time shall be between 8 and 20 seconds.

f. After stabilization of gauge (H) place switch (QQ) in reset position.



Inlet Pressure and Surge Duration Test Setup
Figure 104

g. Place switch (QQ) in "OFF" position and adjust valves (D) and (E) for a ground level indication on altimeter (K).

h. Depress reset lever (70, IPL Figure 1) (button (75) on 803662-13) to reset unit, open valve (F, Figure 703) and vent system.

(7) Perform an inlet pressure test in accordance with Figure 104 and the following procedure.

a. Close valve (F, Figure 703) and place valve (PP) in down position.

b. Adjust valves (D) and (E) until unit actuates automatically.

c. Open valve (F) fully and vent system.

d. Using regulator (X), adjust inlet pressure to 100 psi as indicated on gauge (I).

e. Adjust valve (E) to attain 14,000 feet indication on altimeter (K).

f. Close valve (C).

g. Open valves (EE) and (OO).

h. Attach an external flowmeter and a controllable vacuum source to connection (A).

i. Draw a 20 LPM flow. Flow pressures as indicated on gauge (MM) shall be between 9.8 and 10.8 psia.

j. Close valve (F).

k. Adjust valves (D) and (E) for ground level.

l. Depress lever (70, IPL Figure 1) (button (75) on 803662-13) to reset unit.

m. Open valve (C, Figure 703).

n. Open valve (F) to vent system.

o. Close valves (OO) and (EE).

p. Vent inlet pressure to zero indication on gauge (I) using regulator (X).

q. Remove control unit from test stand.

2. Fault Isolation

A. See Figure 105 for trouble shooting chart.

TROUBLE	PROBABLE CAUSE	REMEDY
Leakage evident when leak testing cover subassembly (125, IPL Figure 1) (refer to Assembly, step 3)	Faulty rolled fittings	Seal leaks by applying Hy-Car Latex to joints of rolled fittings
	Screws (105, IPL Figure 1) not tight enough	Tighten screws
	Faulty gasket (120)	Replace gasket
	Damaged cover sub-assembly (125)	Replace cover subassembly
Leakage evident when leak testing first stage components (refer to Assembly, step 17)	Faulty packing (645)	Replace packing
	Scored, scratched or damaged seat (635)	Repace valve seat
	Valve assembly (620 through 640) loose in body assembly (810)	Tighten pressure reducer valve assembly
	Contamination in valve seat area	Clean contaminated area
Unable to set up first stage pressure (refer to Assembly, step 22)	Punctured or damaged bellofram (605)	Replace bellofram
	Faulty spring (560)	Replace spring
	Spring (560) not seating properly	Check seating of spring

Trouble Shooting Chart (Sheet 1 of 3)
Figure 105

TROUBLE	PROBABLE CAUSE	REMEDY
Leakage evident when leak testing actuation valve assembly (385 through 405)	Scored, scratched or damaged seat (400)	Replace valve seat
	Scratched seating area or damaged stem (405)	Replace stem
	Block (355) loose	Tighten housing
	Faulty packing (410)	Replace packing
Solenoid operates but unit does not stay on Control unit fails to actuate at proper altitude	Detent assembly (265) improperly set	Reset detent assembly per Assembly, step 52
	Aneroid (330) not adjusted properly	Adjust aneroid assembly per Assembly, steps 48, M and N
	Bolt (315) tension not properly adjusted	Adjust per Assembly, steps 29 and 30
	Faulty aneroid (330)	Replace aneroid
Outlet pressure of control unit fails to stabilize at the proper pressure after initial pressure surge	Damaged orifice surface on seat (715)	Replace seat
	Leakage at orifice and diaphragm assembly (675 through 710)	Replace defective parts
	Faulty bellows assembly (225)	Replace bellows assembly
	Pilot flow out of adjustment	Adjust screw (415)
	Damaged seat on orifice assembly (710)	Replace orifice assembly
Outlet pressure of control unit fails to stabilize at the proper pressure at altitude	Setscrew (160) not adjusted properly	Adjust setscrews per Assembly, step 48, G, H and J
	Pilot flow out of adjustment	Adjust screw (415)

Trouble Shooting Chart (Sheet 2 of 3)
Figure 105

TROUBLE	PROBABLE CAUSE	REMEDY
Surge time exceeds 7 seconds maximum	Orifice and diaphragm assembly (675 through 710) not adjusted properly	Adjust orifice and diaphragm assembly per Testing Step E, (1), (2) and (3)
Unable to obtain proper slope	Support (200) not positioned properly	Position support per Assembly, step 48, AC note
Outlet pressure span at altitude not within tolerance	Pin (240) not free in bellows assembly (225)	Replace pin
	Damaged seat assembly (255)	Replace seat assembly
	Leakage through gasket (260)	Replace gasket
	Valve assembly (750 through 770) not properly adjusted	Adjust guide and seat assembly (765) per Assembly, step 11,C
	Lever assembly (165 through 190) not free in support (200)	Adjust per Assembly step 1, A, B, C and D
Unscheduled actuation (with or without surge)	Leakage at valve assembly (385 through 405)	Replace seat (400)

Trouble Shooting Chart (Sheet 3 of 3)
Figure 105

DISASSEMBLY (See IPL Figure 1)

NOTE: Disassembly procedures pertain to all configurations of 803662 and 803663 control units unless otherwise noted.

1. Remove screws (35) and washers (40), disconnect lug (445) and remove solenoid (30) from cover subassembly (125).

2. Remove cover subassembly (125) (-126 for 803662-13) and gasket (140) from body assembly (810) by removing screws (130) and washers (135); then remove gasket (50).

3. Remove identification plate (20) from body assembly (810) only if replacement is required.

4. Straighten and remove pin (60) to remove pin (55); then remove washers (65 and 66) and lever assembly (70).

5. Unthread and remove button (75); then remove washer (80), spring (85) and plunger (95). Remove packing (90) from plunger (95).

6. Remove lens (100) by removing screws (105) and nuts (110); then remove plate (115) and gasket (120).

7. Remove mounting plate (145) by removing screws (150).

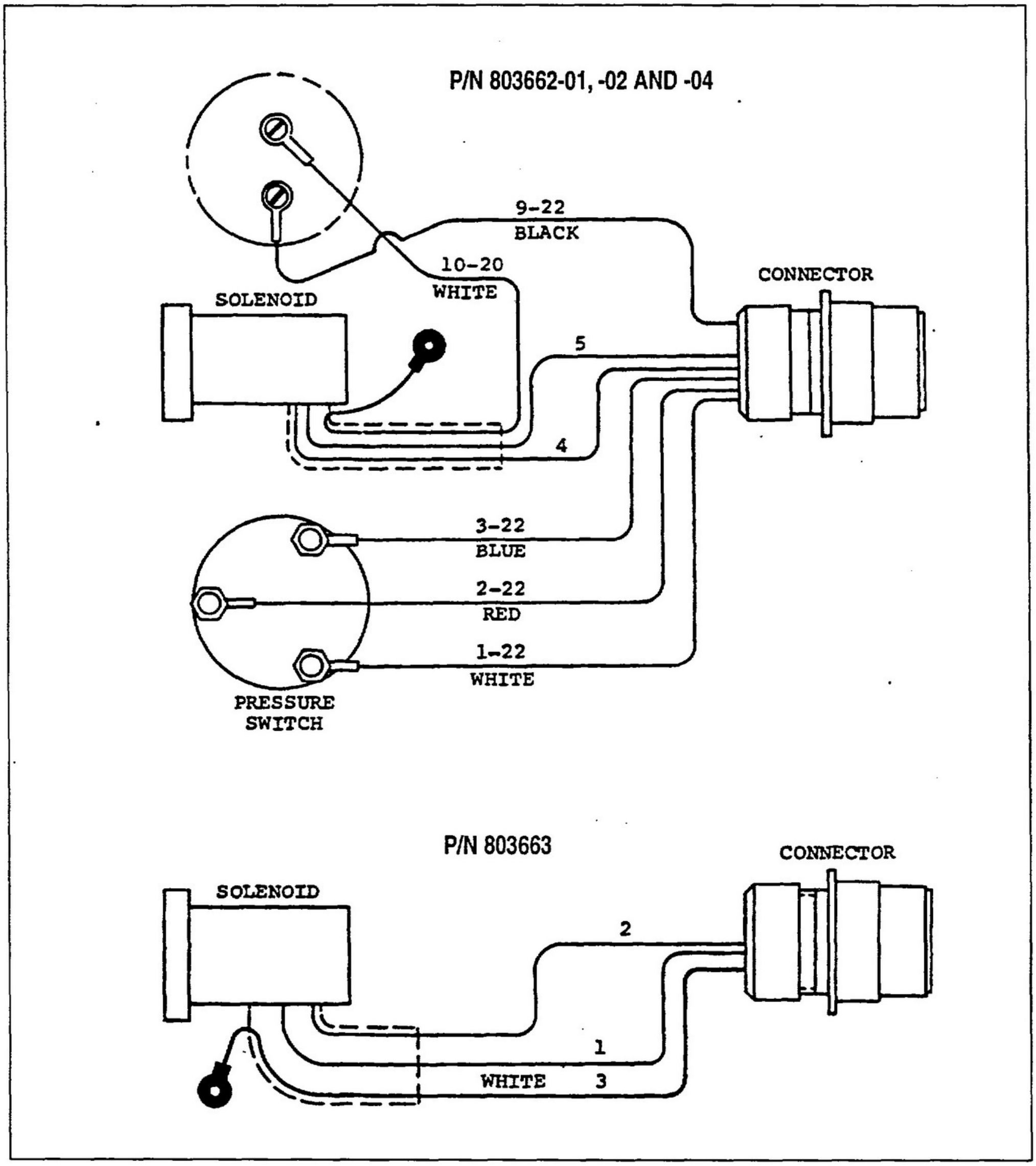
8. Remove terminal nuts, washers (470) and disc(s) (475) to disconnect leads from pressure switch (465) (803662 only) (see Figure 301).

9. Remove screw (485, IPL Figure 1) and washer (490) and disconnect lug (450) attaching white lead to body assembly (810) (803662-01 and -04 only). Remove screw (485) and washer (490) and disconnect lug attached to black lead of cable assembly (425) from body assembly (810) (803662-01 and -04 only).

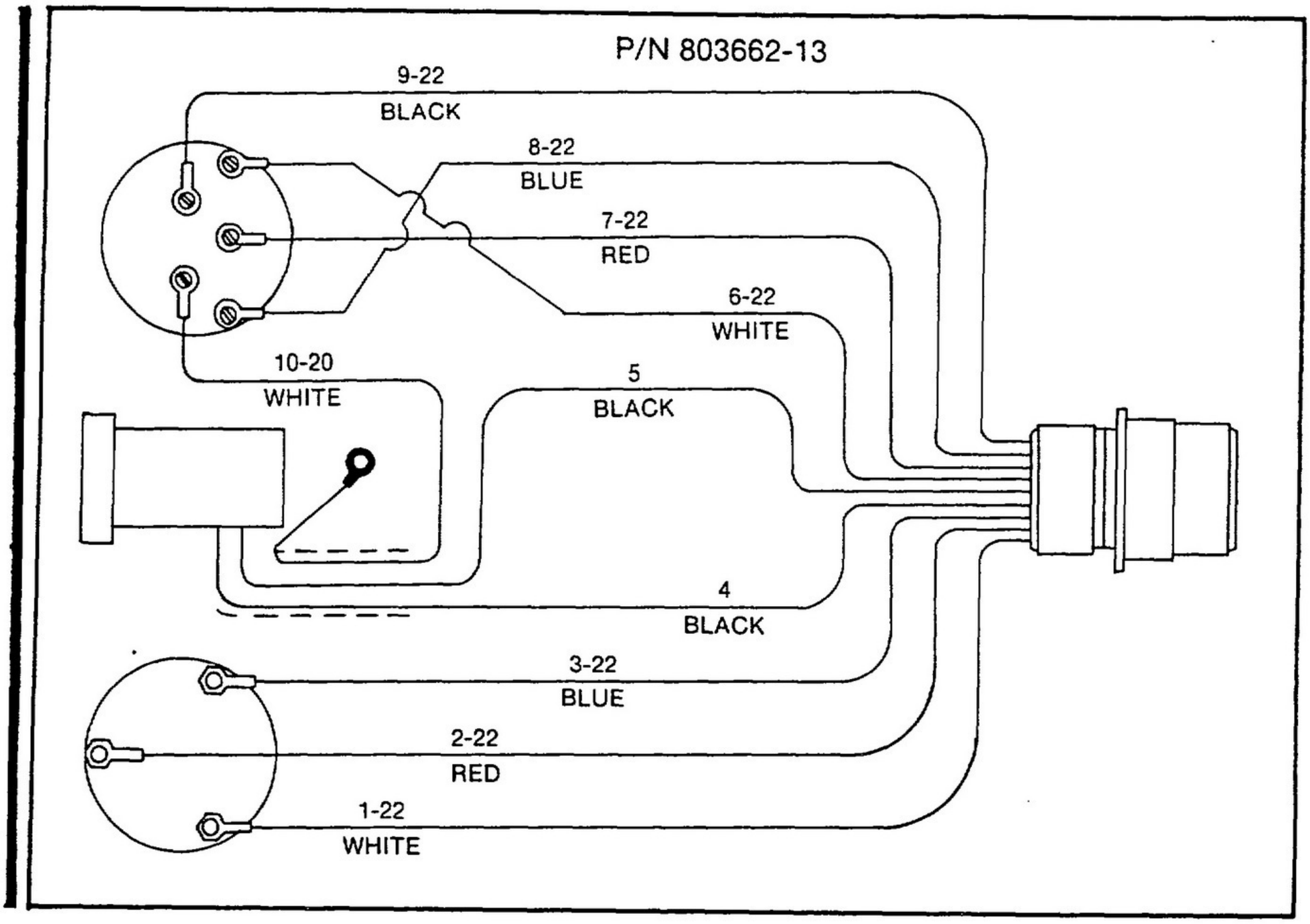
9A. For 803662-13 units, remove screw (491A) and washer (491B) and disconnect lug (450) attaching white lead to transducer (491) and body assembly (-815). Remove screw (491A) and washer (491B) and disconnect lug attached to black lead of cable assembly (-431) from transducer (491) and body assembly (-815). Remove the transducer from the body assembly.

9B. For 803662-13 units, remove screen (491D), sleeve (491E), packing (491F) and ring (491G) from inlet of transducer (491).

10. Remove screws (435) and washers (440) to release cable assembly (425 or -431) (803662 only) (or connector (430) 803663 only).



Cabling Diagram (Sheet 1 of 2)
Figure 301



Cabling Diagram (Sheet 2 of 2)
Figure 301

11. Use appropriate tool and remove pins 4 and 5 from cable assembly (425 or -431) (803662 only) to disconnect solenoid leads and remove solenoid (50) from body assembly (810). Remove tubing (45) from leads of solenoid (30) and wire (455 or 460). (Remove pins 1 and 2 from connector (430) on 803663 only.)

12. Remove cable assembly (425 or -431) or connector (430) from body assembly (810).

13. Remove pressure switch (465) from body assembly (810) and remove packing (480) (803662 only).

14. Remove valve assembly (495) from body assembly (810); then remove packing (500) from the valve assembly.

15. Remove setscrew (160).

16. Remove lever (165) from support (200) by removing setscrews (190), nuts (175 and 185) and washers (180) from pin (170). Remove setscrew (155) and spring (195).

17. Remove support (200) from body assembly (810) by removing screws (205) and washers (210 and 215).

18. Unthread and remove aneroid assembly (220) using wrench (7, Figure 901).

19. Loosen nut (230, IPL Figure 1), unthread and remove bellows assembly (225), remove packing (235) and nut (230) from bellows assembly.

20. Remove pin (240), stem (245), spring (250), seat assembly (255) and gasket (260) from body assembly (810).

21. Remove indicator (270) from lever assembly (310) by removing screw (275) and washer (280).

22. Remove plate (285) from block (355) by removing screws (290) and washers (295).

23. Remove washers (300 and 305) from lever assembly (310). Remove detent assembly (265) from block (355).

24. Remove bolt (315) from frame (345) by removing nuts (320). Remove spring (325) from frame (345).

25. Remove setscrew (335) and insert (340) from body assembly (810). Then unthread aneroid assembly (330) from body assembly (810).

26. Remove frame (345) from body assembly (810) by removing screws (350).

27. Remove block (355) from body assembly (810) by removing screws (360) and washers (365). Remove packing (370).

28. Unthread and remove housing (375); then disassemble valve assembly (385 through 405) as follows:

    (1) Remove nuts (385 and 390) from stem (405).

    (2) Spring (395) and seat (400) are free to be removed from stem (405).

29. Remove packing (410) from body assembly (810).

30. Remove screw (415) from body assembly; then remove packing (420) from groove of screw (415).

31. Unthread and remove plug (505); then remove packing (510) from end of plug (505). Remove union (515), seal (520) and filters (525 and 775) from body assembly (810).

32. Loosen nut (535) on all configurations except 803662-02; unthread and remove elbow or reducer (530/530A), as required, and remove packing (540). Remove nut (535) from elbow (530) on all configurations except 803662-02.

    CAUTION: DEPRESS CAP (545) WITH WRENCH (6, FIGURE 901) AGAINST LOAD OF SPRING (560, IPL FIGURE 1) TO PREVENT THREAD GALLING, WHEN REMOVING CAP.

33. Remove setscrew (550), insert (555) and cap assembly (545).

34. Remove spring (560), washers (565 and 570) and remove retainer (580) with wrench (6, Figure 901). Remove sleeve (575, IPL Figure 1).

35. With a rocking motion, remove diaphragm assembly (595 through 610) from body assembly (810). Remove packing (585).

36. Remove dampener (595) by removing screw (600) from piston (610). Remove bellofram (605).

37. Unthread and remove valve assembly (620 through 640) from the body assembly. Remove packing (645) from body assembly (810). Disassemble the valve assembly as follows:

    (1) Unthread head (620) from stem (640).

    (2) Remove spring (625), guide assembly (630) and seat (635) from stem (640).

38. Unthread and remove cap (650). Remove packing (655) from cap.

NOTE: Use wrench (5, Figure 901) to remove cap (650, IPL Figure 1).

39. Remove disc (660) and spring (665) (803662 only).

40. Remove orifice and diaphragm assembly (675 through 710) (803662 only) and disassemble as follows:

(1) Unthread and remove setscrew (675) from orifice assembly (710); then remove screens (680 and 690) and packing (685) from the orifice assembly.

(2) Remove nut (695), ring (700) and diaphragm (705) from end of orifice assembly (710).

41. Remove seat (715) (803662 only) or plug (720) (803663 only) and bellofram (730) from body assembly (810); then remove packing (725) from seat (715) or plug (720).

NOTE: Use a twist and pull action to remove seat (715) from body assembly (810).

42. Remove plate (735).

43. Remove valve assembly (750 through 770) from body assembly (810).

NOTE: Use wrench (4, Figure 901) to remove the valve assembly from the body assembly.

44. Remove packing (740, IPL Figure 1) from the valve assembly; then disassemble the valve assembly as follows:

(1) Loosen nut (755) then unthread piston (750) from stem (770). Remove guide and seat assembly (765) and spring (760) from end of stem (770).

(2) Unthread nut (755) and remove stem (770) from guide and seat assembly (765).

45. Remove screen (780) from body assembly (810).

46. Remove plates (785 and 795) by removing screws (790 and 800) only if the plates are to be replaced.

CLEANING

1. General

This section contains information regarding the equipment and procedures required for cleaning of the 803662 and 803663 Series Flow Control Units. Prior to cleaning, units shall be disassembled in accordance with the Disassembly section of this document.

2. Safety

WARNING: SUITABLE EYE PROTECTION SHALL BE WORN DURING CLEANING PROCEDURES TO PREVENT EYE INJURIES.

WHEN USING CLEANING SOLVENTS, AVOID PROLONGED OR REPEATED CONTACT WITH SKIN AND INHALATION OF TOXIC VAPORS.

CLEANING PROCEDURES SHALL ONLY BE PERFORMED IN AN APPROVED CLEANING CABINET, OR IN A WELL VENTILATED ROOM OR AREA.

DO NOT USE SOLVENTS NEAR OPEN FLAMES, OR IN AREAS WHERE HIGH TEMPERATURES PREVAIL.

DO NOT ALLOW OIL, GREASE, FLAMMABLE SOLVENTS, OR OTHER COMBUSTIBLE MATERIALS TO COME IN CONTACT WITH PARTS THAT WILL BE EXPOSED TO PRESSURIZED OXYGEN. DUST, LINT AND FINE METAL FILINGS ARE ALSO POTENTIAL COMBUSTIBLES THAT MIGHT IGNITE AND RESULT IN AN EXPLOSION WHEN EXPOSED TO PRESSURIZED OXYGEN.

3. Cleaning Materials

A list of cleaning materials is presented in Table 401. Equivalent materials may be substituted.

Table 401: Cleaning Materials

MATERIAL (Vendor Code)	DESCRIPTION	MANUFACTURER
Cleaner (N/A)	Nonionic detergent, Type I (MIL-D-16791)	Commercially Available
Degreasing Agent - Genesolv 2000 (V72658)	1,1-Dichloro-1-fluoroethane	Allied Signal, Inc. Morristown, NJ 07962

4. Metallic Components

Clean metallic components using a vapor degreasing method with degreaser agent specified in Table 401. Dry components with clean, dry, oil-free, heated air. Hydrocarbon contamination shall not exceed 1.0 mg. per square foot.

5. Non-Metallic Components

Clean non-metallic components using an ultrasonic detergent and water cleaning system. Parts shall be completely rinsed with clear water, and dried using clean, dry, oil-free, heated air. Hydrocarbon contamination shall not exceed 1.0 mg. per square foot.

CHECK

1. Carefully inspect all metal parts for cracks, nicks, dents, burrs or tool marks which might cause malfunction of the control unit.

2. Inspect aneroids (220 and 330, IPL Figure 1) and bellows assembly (225) for dents and cracks and any other signs of damage.

3. Inspect all filters and screens for contamination, corrosion, or damage.

4. Inspect all threads for burrs and signs of damage.

5. Inspect all valve seats for scoring, scratches, contaminants, and other damage.

6. Inspect all parts for obvious damage.

7. Inspect all wiring for worn or cracked insulation, damaged terminals and secure connections at connectors.

REPAIR (See IPL Figure 1)

1. Repair of parts, other than removing burrs and chasing threads, is not recommended.

2. Replace gaskets (50, 140, and 260), washer (300) and packings (90, 235, 370, 410, 420, 491F, 500, 510, 540, 585, 645, 655, 725, and 740).

3. Replace packing (685).

4. Replace diaphragm (705).

5. Replace belloframs (605 and 730).

6. Replace all non-metallic parts except guide assembly (630) and cap assembly (545).

7. Replace screens (680 and 690) and filter (775).

8. Replace all obviously defective or damaged parts.

ASSEMBLY (See IPL Figure 1)

NOTE: Table 701 lists the consumable materials necessary for assembly and testing. Equivalent materials may be used except for oxygen lubricant.

MATERIAL	DESCRIPTION	MANUFAC-TURER*	REFER TO ASSY STEP
Glyptal	#1201 (Red)	V08800	1.C 7.B 41.D 41.E 46 46.A 48.AC 49
Oxygen Lubricant	Krytox 240AC	V18873	2.B 38
Leak Test Solution	Snoop (MIL-L-25567)	V18034	3.C 17.B
Loctite	Grade B	V05972	35.A
Loctite	Grade C	V05972	2.C 5.B 9.C 20 23 25 49
Lubricating Powder	Fluoroglide 200 Dry Lubricant	V18632	20 34
Oxygen	MIL-O-27210, Type I	V07098	2.C 48.B
Torque Paint (Tinted Pink)	Temp Alarm Type 43E	V82682	16, 39, 51, 53, 54, 56 & 57
Latex Sealant	HyCar Latex	V91427	2.A

*Refer to Illustrated Parts List, paragraph 2.C for Vendor's Codes.

List of Consumable Materials for Assembly and Testing
Table 701

NOTE: Assembly procedures pertain to all configurations of 803662 and 803663 control units unless otherwise noted.

NOTE: When performing tests required during assembly procedures close valve (SS, Figure 703), open valve (RR), and place selector valve (PP) in 800801 (up) position unless otherwise noted.

1. Assemble items 155 through 190 to item 200 as follows:

   A. Thread setscrew (155) into lever (165) until the screw is flush with the top of the lever.

   B. Thread setscrews (160) into lever (165) until the setscrews are flush with the top of the lever.

   C. Assemble lever (165) to support (200) with pin (170), and secure with nuts (175) and washers (180). Apply Glyptal to nuts (175) and washers (180).

      NOTE: To restrict pin (170) from rotating when assembled to support (200), prick punch side of pin (170) to create an interference fit between pin (170) and support (200).

   D. Assemble setscrews (190) and nut (185) to support (200).

2. Set the items assembled in step 1 aside, and assemble items 75 through 120 to cover subassembly (125) as follows:

   A. Assemble gasket (120), plate (115) and lens (100) to cover subassembly (125) with screws (105) and nuts (110).

      NOTE: Apply a thin coat of latex to the threads of screws (105) and around the edge of plate (115) to form a seal between plate (115) and lens (100).

      CAUTION: AVOID APPLICATION OF KRYTOX 240 AC TO THREADED AREAS.

   B. Lubricate packing (90) sparingly with Krytox and assemble on plunger (95) using stylus (9, Figure 901).

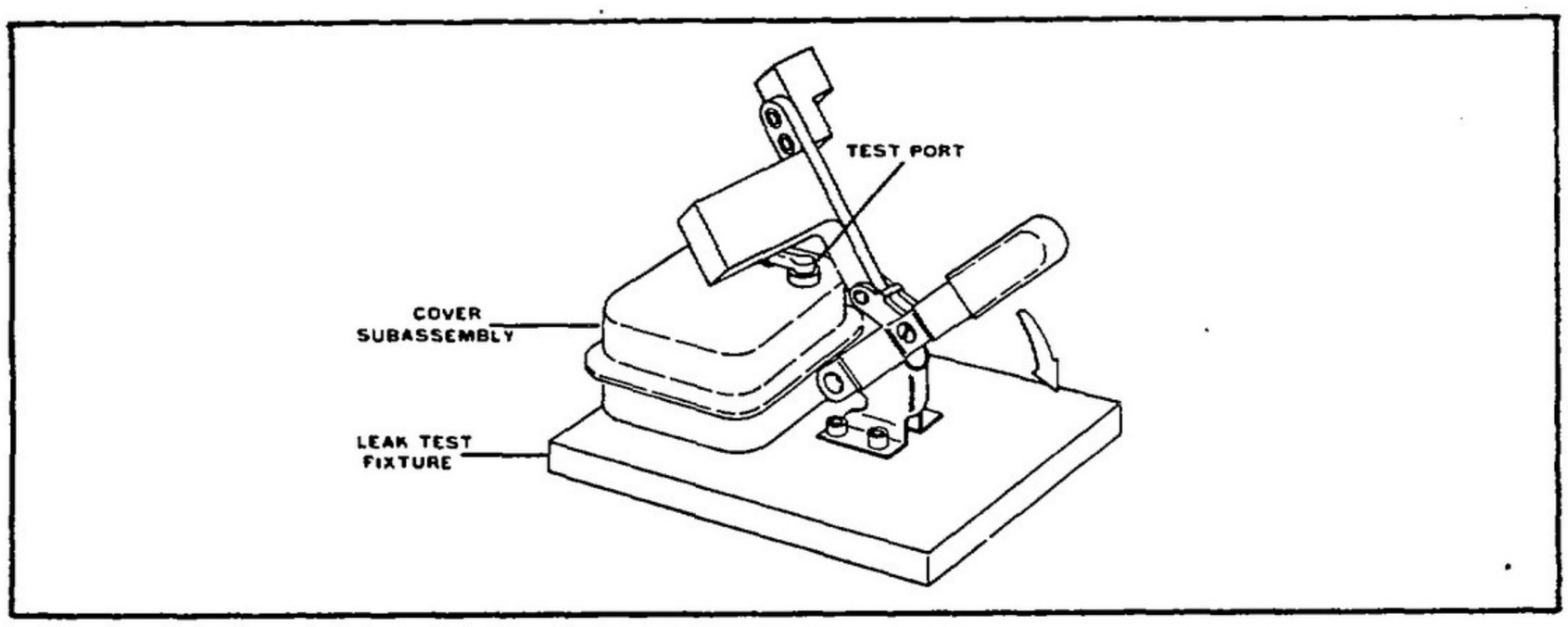
   C. Place plunger (95, IPL Figure 1) with packing (90) installed, through cover subassembly (125). Place washer (80) on end of plunger (95). Place spring (85) in place and thread button (75) onto plunger (95) after applying a coat of Loctite, Grade C, to plunger threads.

CAUTION: OXYGEN CONFORMING TO FEDERAL SPEC. MIL-O-27210, TYPE I, IS USED AS THE TEST GAS WHEN PERFORMING THE TESTS OUTLINED IN ASSEMBLY. IF NITROGEN OR AIR IS USED, APPROPRIATE DENSITY CORRECTION FACTORS SHALL BE APPLIED TO THE FLOWMETER USED, TO CORRECT NOT ONLY THE EFFECT ON THE METER ITSELF, BUT ALSO THE EFFECT ON THE PERFORMANCE OF THE CONTROL UNIT WITH THE LOWER DENSITY GAS.

3. Leak test cover subassembly (125 and -126) in accordance with Figure 701 and the following procedure.

   A. Place unit under test in leak test holding fixture (2, Figure 901) and lock in place with handle.

   B. Apply 15 psi to test port.



Cover Subassembly Leak Test Setup
Figure 701

   C. Coat all rolled fittings and area of lens (100, IPL Figure 1) with leak test solution. No leakage shall be evident, refer to Figure 105 for remedial action.

   D. After completion of test, close off oxygen source, remove unit from test setup, blow dry with a stream of clean, dry, oil-free air and continue assembly.

4. Set the items assembled in step 2.A. through C. aside, and assemble items 785 through 800 to body assembly (810, IPL Figure 1) as follows:

   A. Attach plates (785 and 795) to body assembly (810) with screws (790 and 800).

5. Assemble items 270 through 285 and 300 and 305 to lever assembly (310) as follows:

   A. Insert plate (285) on lever assembly (310).

   B. Assemble indicator (270) to lever assembly (310) with screw (275) and washer (280). Apply Loctite, Grade C, to screw (275) prior to assembly.

   C. Place washers (300 and 305) on opposite end of lever assembly (310).

      NOTE: Place flat side of washer (300) against washer (305).

6. Set items assembled in step 5, A. through C. aside.

7. Assemble items (55 through 70) on cover subassembly (125) as follows:

   A. Secure lever assembly (70) to cover subassembly (125) with pin (55).

   B. Retain pin (55) with pin (60) and washers (65). Apply Glyptal to pin (55), cotter pin (60) and washers (65).

8. Install filters (525 and 775) and screen (780) into housing assembly (810).

9. Assemble valve assembly (620 through 640) as follows:

   A. Place seat (635) and guide assembly (630) on stem (640).

      NOTE: Chamfer side of seat (635) is next to guide assembly (630).

   B. Place spring (625) in place on guide assembly (630).

   C. Secure these items together by threading head (620) onto stem (640). Torque tighten in accordance with Table 801.

CAUTION: ALLOW SUFFICIENT DRYING TIME TO PREVENT LOCTITE FROM RUNNING INTO BORE OF GUIDE ASSEMBLY (630).

NOTE: Apply Loctite, Grade C, to threads of stem (640) prior to assembly. After applying Loctite, rest the item on the face of head (620) and allow to dry.

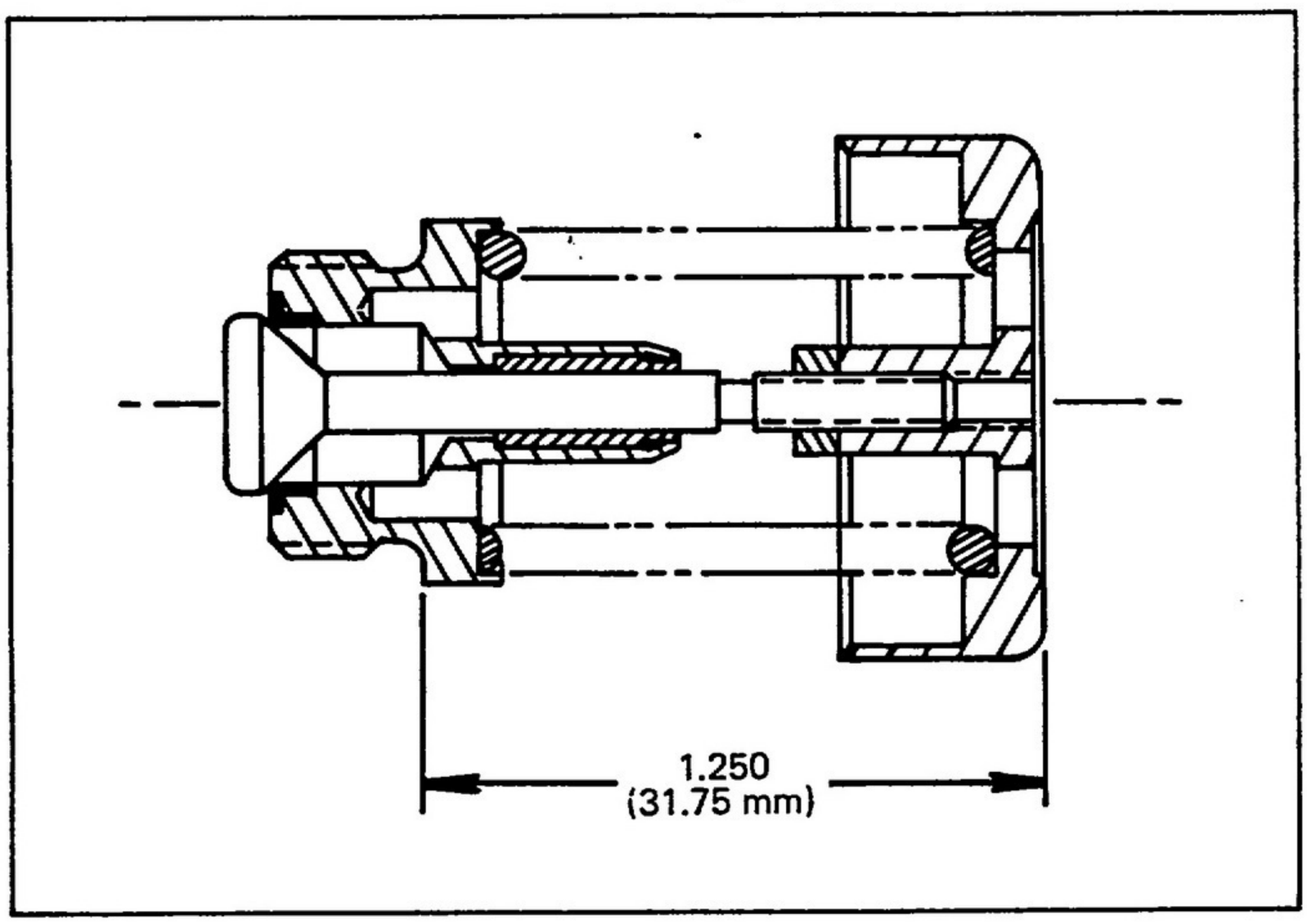
10. Place packing (645) in groove provided in body assembly (810). Thread assembled valve assembly (620 through 640) (refer to Step 9) into body assembly (810) and torque tighten in accordance with Table 801.

11. Assemble valve assembly (750 through 770) as follows:

    A. Place guide and seat assembly (765) on stem (770).

    B. Thread nut (755) onto stem (770).

    C. Place spring (760) and guide and seat assembly (765) in place and thread piston (750) onto stem (770). Adjust piston (750) for dimension specified in Figure 702. After adjustment, torque tighten nut (755, IPL Figure 1) against inside face of piston (750) in accordance with Table 801.



Flow Control Valve Assembly Adjustment
Figure 702

12. Place packing (740) in groove of guide and seat assembly (765). Place assembled valve assembly (750 through 770) into body assembly (810) using wrench (4, Figure 901) until physically restricted.

13. Assemble valve assembly (385 through 405, IPL Figure 1) as follows:

    A. Place seat (400) and spring (395) onto stem (405).

    B. Thread nuts (385 and 390) onto stem (405). Adjust and lock nuts (385 and 390) so that the overall length from the bottom face of seat (400) to the top of nut (385) is 1.09 inches (27.686 mm). Place packing (410) in groove of seat (400).

14. Place assembled valve assembly (385 through 405) into body assembly (810). Thread housing (375) into body assembly (810). Place packing (370) in groove of block (355) and secure block (355) to body assembly (810) with screws (360) and washers (365).

15. Place flat side of seal (520) against hex of union (515). Thread nut (535) on elbow (530) and place packing (540) on elbow (530). Place items assembled above aside.

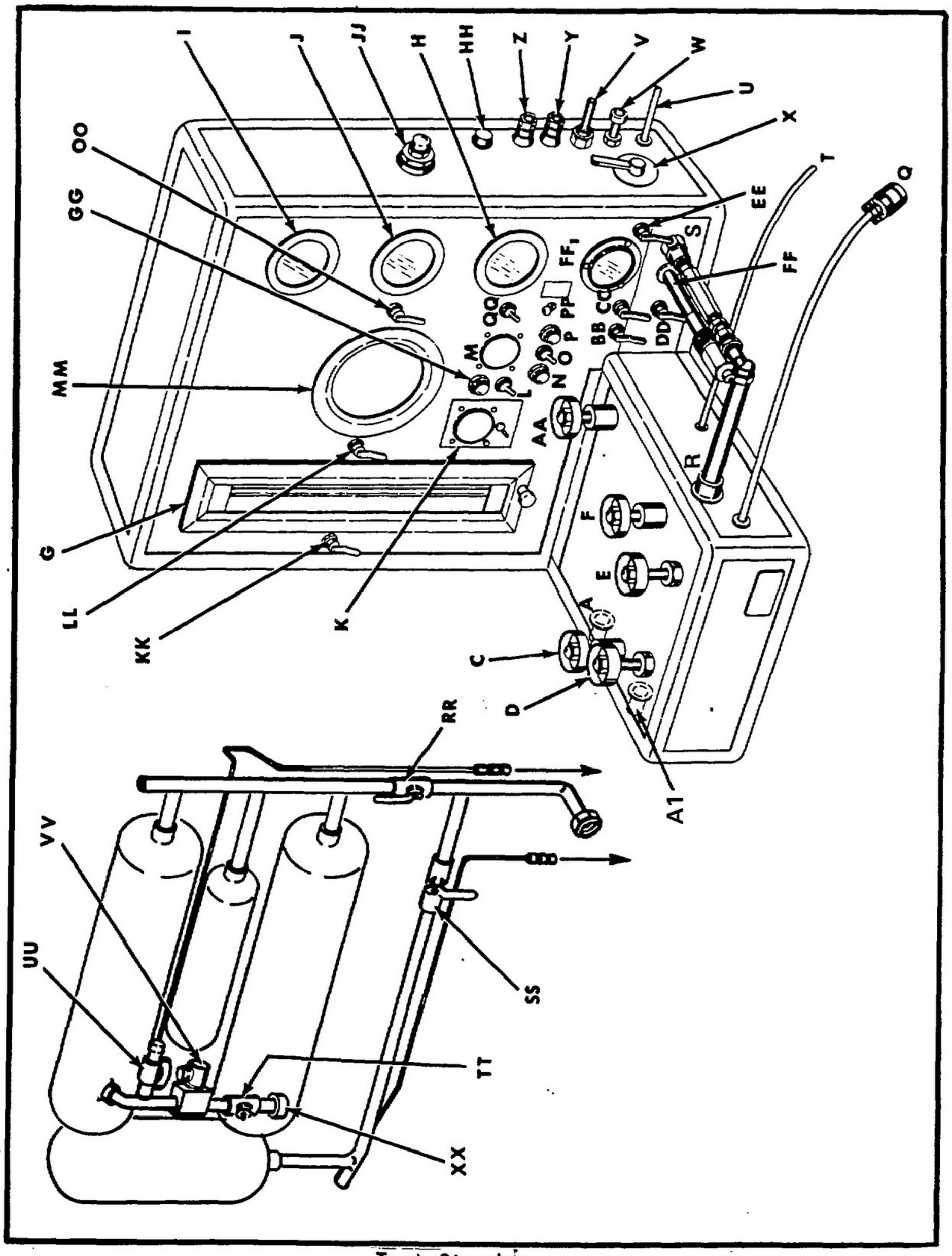
16. Place packing (500) onto valve assembly (495). Prior to assembly of valve assembly (495) into body assembly (810), test in accordance with Testing, step 1.A. Thread valve assembly (495) into body assembly (810). Apply torque paint to valve assembly (495) at body (810) after assembly. Place packing (510) on plug (505) using stylus (9, Figure 901) and thread into test port of body assembly (810, IPL Figure 1).

17. Leak test the first stage of the control unit in accordance with Figure 703 and the following procedure.

    A. Close all test stand valves and switches and connect the unit inlet to connection (S), rotating the control unit so that first stage components are facing up. Connect a 2000 psi oxygen source to connection (W). Adjust regulator (X) for an indication of 200 psi on gauge (I).

    B. Cap the first stage area with a #10 rubber stopper equipped with a vent tube. Apply leak test solution across vent tube, no leakage shall be evident.

    C. After completion of test, adjust regulator (X) to bleed pressure from the test setup, remove the unit from the test stand, blow dry with a stream of clean, dry, oil-free air and continue assembly.



Test Stand
Figure 703

Legend for Figure 703

A_1.	Connection for external flowmeter
A.	Connection for external flowmeter
B.	Valve (HIGH FLOW/LOW FLOW) (located on underside of deck)
C.	Valve ON (high) - OFF (low) flow selector
D.	Valve (vent)
E.	Valve (vacuum)
F.	Valve (flow control)
G.	Flowmeter
H.	Outlet Pressure Gauge (0-160 psi)
I.	Inlet Pressure Gauge (0-3000 psi)
J.	Outlet Pressure Gauge (0-60 psi)
K.	Altimeter
L.	Switch (vibrator)
M.	Oxygen Pressure Indicator
N.	Light (green)
O.	Switch (energize solenoid)
P.	Light (red)
Q.	Electrical Connector (to unit under test)
R.	Connection (to outlet of test unit)
S.	Connection (to inlet of test unit)
T.	Vacuum Tubing (to test port of test unit)
U.	Electrical Cable (to 110 VAC outlet)
V.	Connection (to external vacuum source)
W.	Connection (to external oxygen/air/nitrogen source)
X.	Regulator (regulates oxygen/air/nitrogen to test stand)
Y.	Connection (for positive lead of 28VDC external power source)
Z.	Connection (for negative lead of 28VDC external power source)
AA.	Valve (volume cylinder shut-off)
BB.	Valve (back pressure)
CC.	Valve (first stage pressure)
DD.	Valve (vent)
EE.	Valve (gauge J shut-off)
FF.	Connection (to test port of test unit)
FF_1.	Gauge (0-160 psi - first stage back pressure)
GG.	Light (indicator for vibrator)
HH.	Fuse (115V vibrator circuit)
JJ.	Regulator (first stage relief and back pressure)
KK.	Valve (25 LPM surge vent)
LL.	Manometer shut-off and calibration valve
MM.	0-100 psi gauge
OO.	Valve (gauge MM shut-off)
PP.	Surge System selector valve
QQ.	Surge relay reset switch
RR.	800801 Surge System shut-off valve
SS.	22504-22505 Surge System shut-off valve
TT.	985 LPM controllable orifice
UU.	Surge pressure switch
VV.	Surge solenoid valve
WW.	Surge relay
XX.	985 LPM Surge outlet

18. Replace packing (420, IPL Figure 1) in groove of screw (415) using stylus (9, Figure 901).

19. Thread screw (415, IPL Figure 1) into body assembly (810) until screw is flush with body assembly (810).

20. Place packing (585) in groove of dampener (595). Position dampener (595) and bellofram (605) with fabric side against head of piston (610), secure with screw (600) and torque tighten in accordance with Table 801. Apply Loctite, Grade C, to screw (600) at assembly and allow sufficient time to dry. Dust bellofram (605) with lubricating powder and place assembled diaphragm assembly (595 through 610) in body assembly (810). Insert sleeve (575) and retainer (580) into body assembly (810) using wrench (6, Figure 901) and torque tighten in accordance with Table 801.

    NOTE: Apply sufficient pressure to wrench (6) to facilitate thread engagement.

21. Place washer (570, IPL Figure 1), spring (560) and washer (565) in body assembly (810). Thread cap assembly (545) into the body assembly using wrench (6, Figure 901).

22. Adjust the first stage pressure and leak test actuation valve assembly (385 through 405, IPL Figure 1) in accordance with Figure 703 and the following procedure.

    A. Remove plug (505, IPL Figure 1) from body assembly (810).

    B. Connect the control unit to connection (S, Figure 703) and connection (R) of the test stand. Connect connection (FF) to test port of unit under test. Close all other test stand valves and switches and place valve (PP) in down position. Adjust regulator (X) for an indication of 500 psi on gauge (I).

    C. Adjust cap assembly (545, IPL Figure 1) for an indication of 120 psi on gauge (FF_1, Figure 703), Actuate valve (DD) intermittently during adjustment of cap (545, IPL Figure 1).

        NOTE: Use wrench (6, Figure 901) to adjust the cap assembly.

    D. Pour sufficient distilled water into opening of block (700, IPL Figure 1) to cover valve assembly (385 through 405). No leakage shall be evident.

        NOTE: Use water sparingly. After leakage check, drain excess water and blow dry with stream of clean, dry, oil-free air.

E. After adjustment, manually exercise valve assembly (750 through 770) several times. Check gauge (FF_1, Figure 703) for an indication of 120 psi. First stage pressure shall remain at 120 psi after exercising the valve assembly.

NOTE: If first stage pressure cannot be set at 120 psi, refer to Figure 105 for remedial action.

23. Apply a coating of Loctite, Grade C, to threads of aneroid (220, IPL Figure 1), then thread aneroid into body assembly (810) using wrench (7, Figure 901).

24. Position frame (345, IPL Figure 1) on body assembly (810) aligning mounting holes of the frame with holes in body assembly. Thread alignment tool (11, Figure 901) through the large diameter hole in frame (345, IPL Figure 1) and into the hole provided for aneroid (330) in body assembly (810), until the tool bottoms out on the surface of body assembly (810).

25. With alignment tool in place, adjust frame (345) until mounting holes are aligned with holes in body assembly (810). Secure the frame to body assembly (810) with screws (350) and apply Loctite, Grade C, to screws (350). Unthread the alignment tool from the housing assembly.

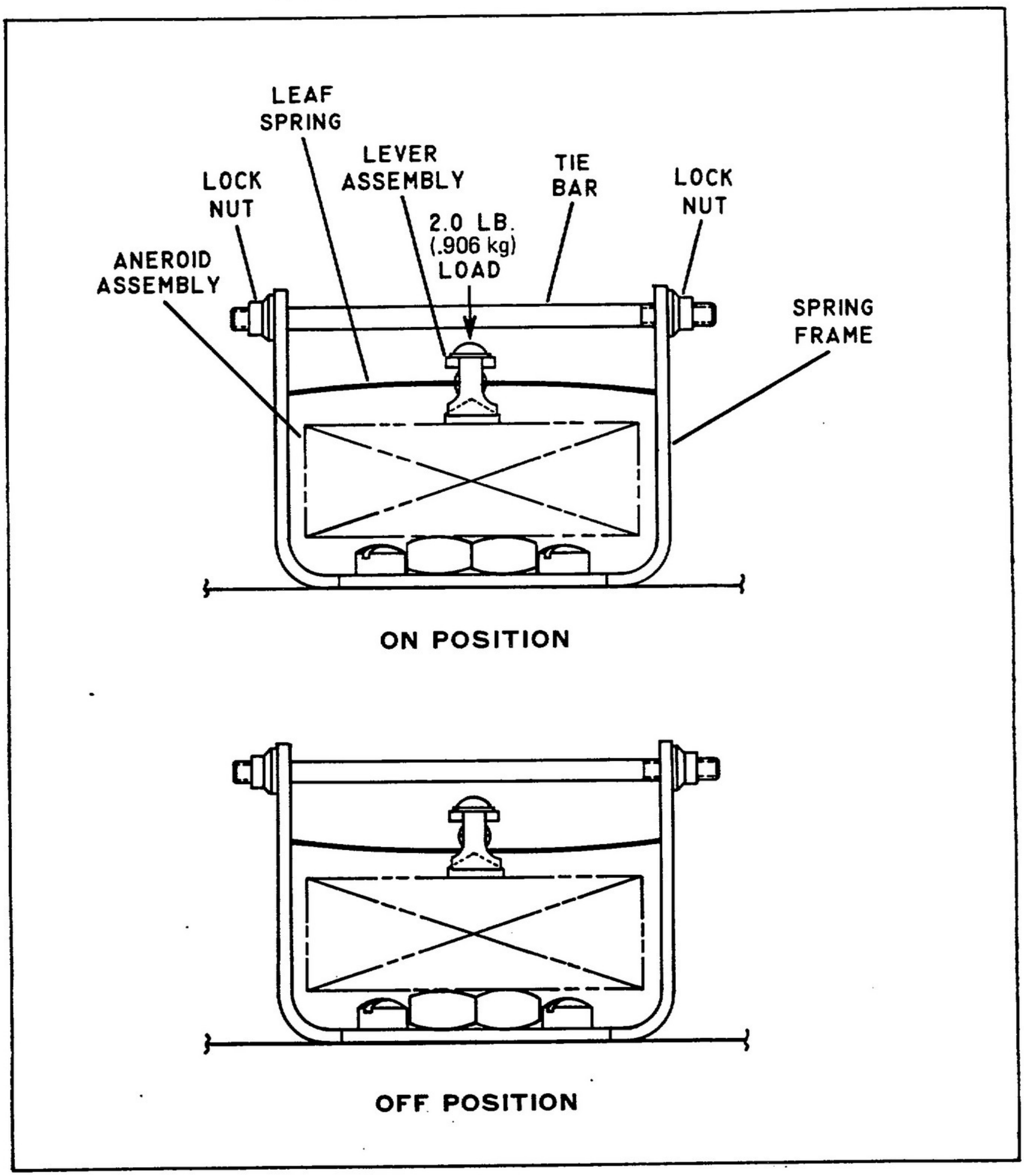
26. Vent contained pressure from system using regulator (X, Figure 703).

27. Carefully thread aneroid (330, IPL Figure 1) into body assembly (810) until it bottoms out finger tight. Mount the items assembled in step 5. to block (355) with screws (290) and washers (295).

28. Position spring (325) between lever assembly (310) and aneroid (330). Position the spring so that the ends of the spring line up with the slots of frame (345).

29. Thread one nut (320) onto end of bolt (315). Slide bolt (315) through holes in frame (345) and thread on other nut (320). Turn nuts until ends of spring (325) are secured in slots of frame (345).

30. Turn in nuts (320) until spring (325) is in "ON" position as illustrated in Figure 704. Adjust the nuts until the spring snaps to the "OFF" position when a load of 2.0 pounds (.906 kg) is applied to lever assembly (310, IPL Figure 1) and spring (325) as illustrated in Figure 704.



Leaf Spring Adjustment
Figure 704

31. Install gasket (260, IPL Figure 1) into port of body assembly (810) and then thread seat assembly (255) into body assembly (810). Place spring (250) and stem (245) into port of body assembly (810). Thread nut (230) onto bellows assembly (225). Place packing (235) in groove of bellows assembly (225) using stylus (9, Figure 901).

32. Insert pin (240, IPL Figure 1) into bellows assembly (225); then thread the bellows assembly into body assembly (810) until packing (235) seats in chamfer provided in body assembly (810).

33. Install insert (340) and setscrew (335) into body assembly (810), do not tighten.

34. Place plate (735) against face of piston (750). Place packing (725) in groove without hole, of seat (715) (803662) or plug (-720) (803663). Dust bellofram (730) with lubricating powder and place over lip of seat (715), or plug (-720) fabric side out.

35. Assemble orifice and diaphragm assembly (675 through 710) (803662 only) as follows:

    A. Place diaphragm (705) and ring (700) on orifice assembly (710) and secure in place with nut (695). Apply Loctite, Grade B, to threads of nut (695) prior to assembly.

    B. Place screen (690), packing (685) and screen (680) into orifice assembly (710). Secure these items in the orifice assembly with setscrew (675).

        NOTE: Prior to installing assembled orifice and diaphragm assembly (675 through 710) into body assembly (810), test in accordance with procedures in Testing, paragraph 1.E.

36. Place assembled orifice and diaphragm assembly (675 through 710) in body assembly (810) (803662 only).

37. Place disc (660) and spring (665) into cap (650) (803662 only).

38. Lubricate packing (655) with Krytox and place in groove of cap (650).

39. Thread cap (650) into body assembly (810) until cap (650) bottoms, using wrench (5, Figure 901). Apply torque paint to cap (650, IPL Figure 1) at body (810) after assembly.

40. Insert test plug (13, Figure 901) into block (355, IPL Figure 1).

41. Mount the items assembled in step 1. to body assembly (810) as follows:

    A. Place spring (195) over setscrew (155).

    B. Mount support (200) to body assembly (810) with screws (205) and washers (210 and 215).

        NOTE: Before tightening screws (205), align center of setscrew (160) with tip of bellows assembly (225), and center of other setscrew (160) with tip of aneroid (220).

    C. Assemble and adjust setscrews (190) so that lever (165) has approximately .001" (.0254 mm) clearance from support (200) and moves freely. Then tighten nuts (185).

    D. Apply Glyptal to nuts (185) and setscrews (190).

    E. Depress lever (165) at aneroid (220) and adjust setscrew (155) until lever (165) is horizontal. Apply Glyptal to cavity of lever (165) which houses setscrew (155).

    F. Adjust setscrew (160) to apply restraining pressure to bellows assembly (225).

42. Install packing (480) on switch (465) and thread switch (465) into body assembly (810). Tighten sufficiently to effect a leak tight connection (803662 only).

    NOTE: Place solenoid leads through appropriate body assembly (810) cavity before performing next step.

43. Install leads of solenoid (30) into positions 4 and 5 of cable assembly (425 or -431) using suitable tool (803662 only). Install leads of solenoid (30) into positions 1 and 2 of connector (430) using suitable tool (803663 only).

44. Position cable assembly (425 or -431) on body (810) with pin 5 nearest mounting plate (145) and secure with screws (435) and washers (440) (803662 units only). Position connector (430) on body (810) with pin 7 opposite mounting plate (145) and secure with screws (435) and washers (440) (803663 units only).

45. Place disc(s) (475) over terminals of pressure switch (465) and attach cable assembly to pressure switch (465) in accordance with Figure 301, (803662 0nly) with washers (470, IPL Figure 1) and terminal nuts.

    NOTE: Additional discs (475) are used as required to ensure tight connection of cable assembly leads to the pressure switch.

46. For 803662-01, -02 and -04, glyptal and attach lug (450) on white wire (455) to body assembly (810) with screw (485) and washer (490). Connect black lead from cable assembly (425) to body assembly (810) with screw (485) and washer (490).

46A. For 803662-13 only, and using Figure 301 for reference, place ring (491G), packing (491F), sleeve (491E) and filter (491D) on inlet of transducer (491). Glyptal and attach lug (450) on white wire (455) to transducer (491) and body assembly (-815) with screw (491A) and washer (491B). Connect black lead from cable assembly (-431) to transducer (491) and body assembly (-815) with screw (491A) and washer (491B).

47. To test solenoid (30), attach positive and negative poles of 28VDC power supply to pins 4 and 5 of cable assembly (425 or -431) (803662 only) or pins 1 and 2 of connector (430) (803663 only) momentarily. Solenoid (30) shall actuate.

48. Adjust and test the partially assembled control unit in accordance with Figure 703 and the following procedure.

    A. Connect the control unit to the test stand at connection (R), connection (S) and connection (FF).

    B. Slowly turn on external oxygen supply and adjust regulator (X) for 500 psi indication on gauge (I).

    C. Open valves (C) and (AA).

    D. Thread screw (415, IPL Figure 1) into body assembly (810) six revolutions.

    E. Manually snap spring (325) to "ON" position. The control unit shall surge as indicated on gauge (H, Figure 703). Adjust valve (F) to 1/4 open position. If pressure on gauge (H) remains near first stage pressure, leave valve (F) opened slightly and adjust screw (415, IPL Figure 1) clockwise until pressure indication drops on gauge (H, Figure 703). Keep adjusting screw (415, IPL Figure 1) slowly until only a slight flow is heard at outlet of stand.

F. Close valves (C) and (AA), Figure 703. Attach a flowmeter to connection (A) and adjust screw (415, IPL Figure 1) for an indication of 1.3 LPM on flowmeter. Open valve (AA, Figure 703), close valve (F) and remove flowmeter from connection (A).

G. Loosen setscrew (160, IPL Figure 1) over bellows assembly (225), and place valve (EE, Figure 703) in "ON" position.

H. Loosen nut (230, IPL Figure 1) and adjust bellows assembly (225) clockwise for a 1.3 psi indication on gauge (J, Figure 703). Open valve (LL), and adjust valve (F) for an indication of 25 LPM on flowmeter (G). Lock bellows assembly (225, IPL Figure 1) with nut (230). Recheck pressure and readjust if required. Close valve (EE, Figure 703).

J. Adjust setscrew (160, IPL Figure 1) until a clearance of 0.001 inch (.0254 mm) is attained between setscrew (160) and bellows assembly (225) (see Figure 705). Lever (165, IPL Figure 1) shall be manually bottomed against setscrew (195) when this is adjusted.

K. Manually reset spring (325). Open valve (C, Figure 703). Close valve (F). Vent contained pressure through regulator (X). Attach vacuum tubing (T) to test port of test cover (12, Figure 901) and place the test cover on the control unit. Close valve (D, Figure 703) and open valve (E) until spring (325, IPL Figure 1) emits an audible click. The click shall occur between 13,900 and 14,100 feet as indicated on altimeter (K, Figure 703) for -01 and -13 units and for -04 units between 14,400 and 14,600 feet.

L. Close valve (E), open valve (D) to return system to ground level.

M. Adjust position of aneroid (330, IPL Figure 1) by trial and error until proper altitude actuation occurs.

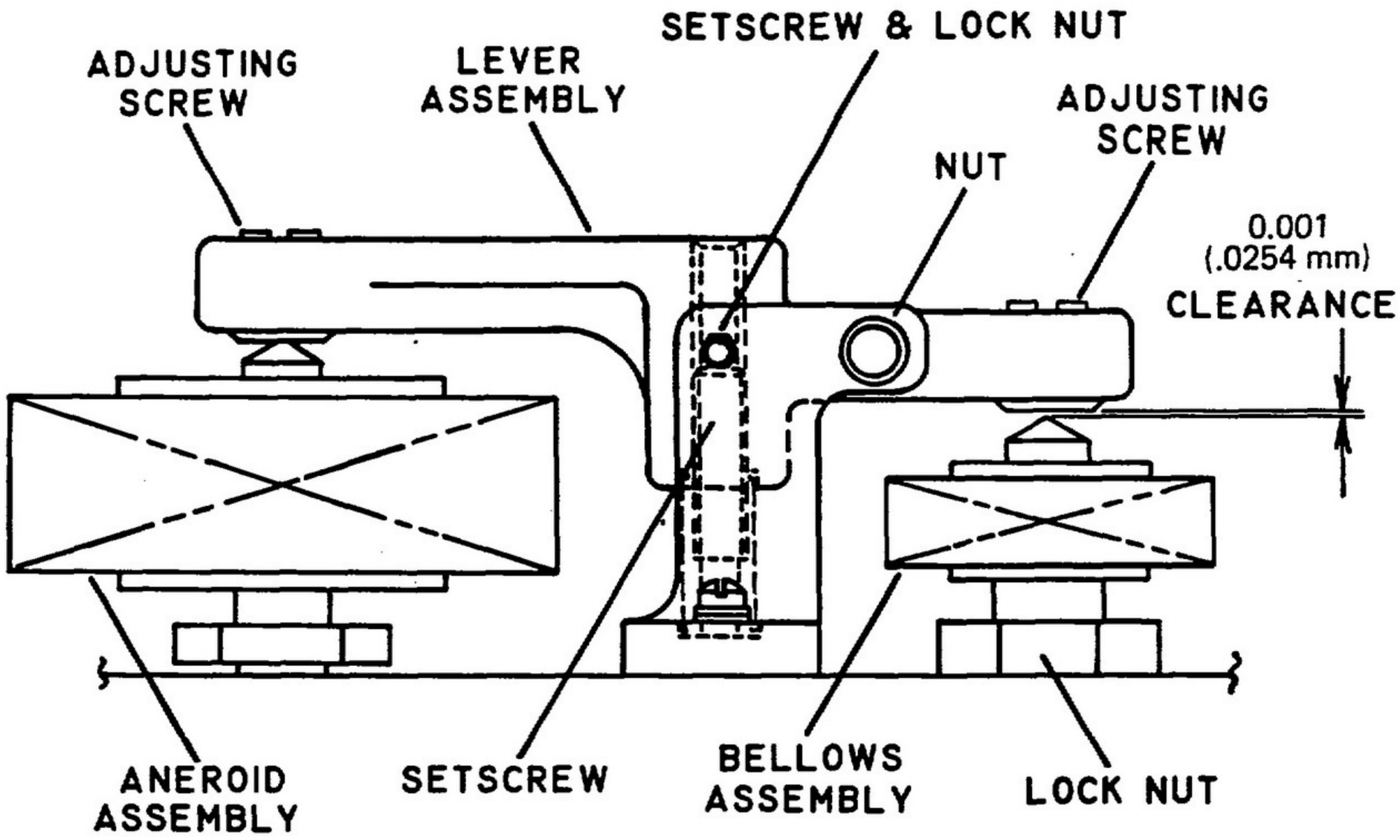
N. Tighten setscrew (335).

NOTE: Loosen setscrew (335) for each new position of aneroid (330). Retighten setscrew prior to rechecking of altitude actuation.

P. Manually reset spring (325) to "OFF" position.

R. Apply 500 psi to system using regulator (X, Figure 703) and indicated on gauge (I).

S. Place test cover (12, Figure 901) on unit under test.



Lever Assembly Adjustment
Figure 705

T. Close valve (D, Figure 703) and adjust valve (E). While adjusting valve (E), watch gauge (H). Using a stop watch, check the time elapsed from control unit turn on (surge) until the surge reaches 50 psi minimum. Time elapsed shall be a maximum of 7 seconds. Turn on altitude shall be between 13,250 and 14,500 feet for -01, -02 and -13 units, and 14,000 to 15,000 feet for -04 units.

NOTE: If time elapsed is more than 7 seconds or a minimum of 50 psi is not attained, check for 0.001 inch (0.0254 mm) clearance (see Figure 705). For 803662, replace packing (685, IPL Figure 1) and adjust setscrew (675). After any adjustment of setscrew (675), repeat step T to ensure elapsed time of 7 seconds maximum. After final adjustment, stake setscrew (675) to maintain setting.

U. Close valve (LL, Figure 703) and vent system by opening valve (F).

V. Close valves (C) and (F). Adjust valve (E) for 20,000 feet indication on altimeter (K), open valves (EE) and (OO) and check indicated pressure on gauge (MM).

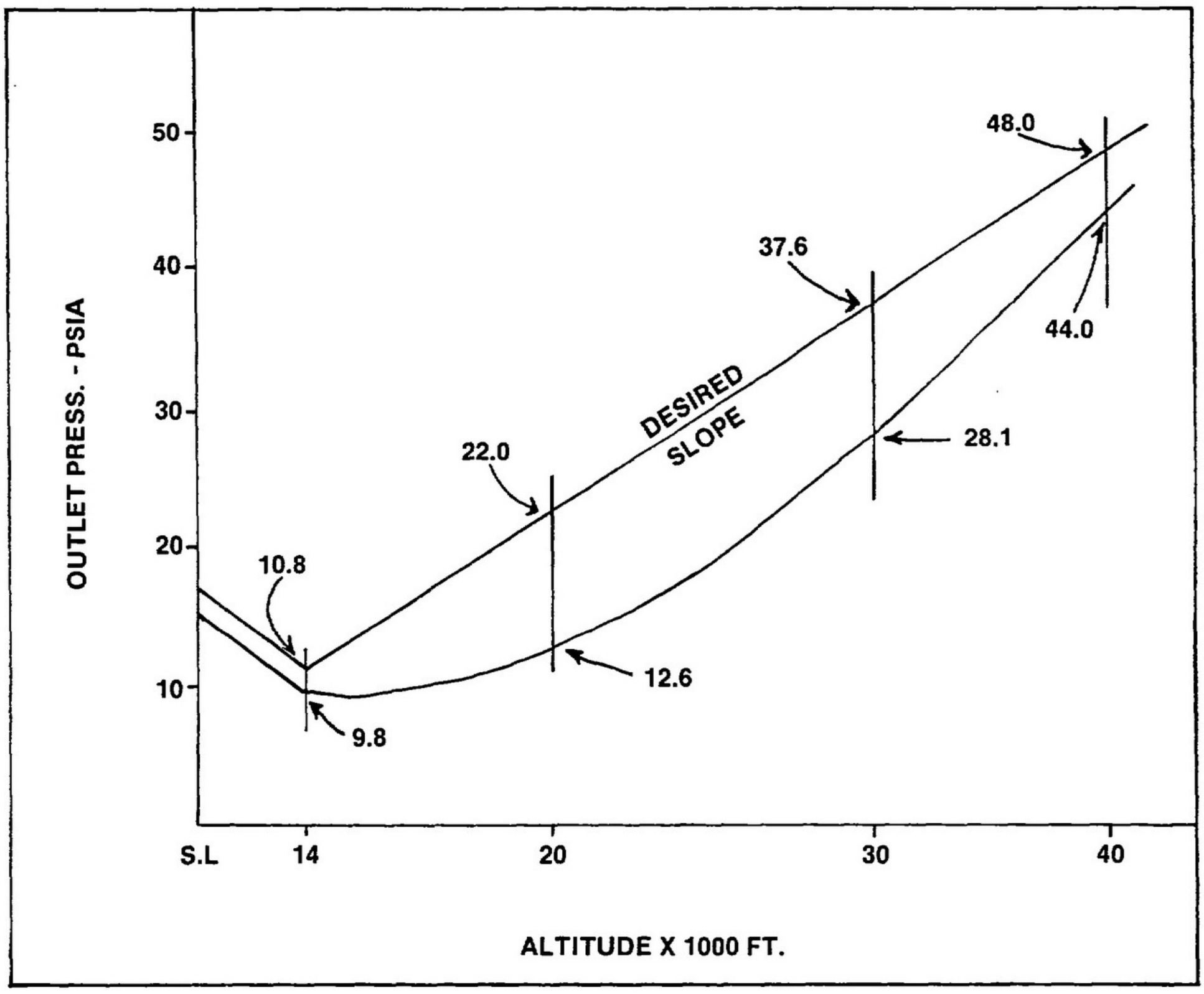
W. Open valve (LL) and adjust valve (F) for a flow indication of 25 LPM on flowmeter (G). Pressure indication on gauge (MM) shall be between 12.6 and 22.0 psia.

Y. If pressure is not between 12.6 and 22.0, close valves (F) and (E), open valve (D) and return system to ground level. Remove test cover and adjust setscrew (160, IPL Figure 1) over aneroid (220). To increase pressure indication turn setscrew (160) clockwise.

Z. Close valves (D) and (F), Figure 703. Adjust valve (E) for 20,000 feet indication on altimeter (K).

AA. Adjust valve (F) for an indication of 25 LPM on flowmeter (G). Read pressure indication on gauge (MM) and record on graph paper prepared in accordance with Figure 706.

AB. Close valve (F, Figure 703) and adjust valve (E) for 40,000 feet on altimeter (K). Adjust valve (F) for an indication of 25 LPM on flowmeter (G). Read pressure indication on gauge (MM) and record on graph. Close valve (E) and open valve (D) until altimeter (K) indicates ground level. Close valve (LL), open valves (C) and (F) fully to vent system. Close valve (F).



Graph
Figure 706

AC. Draw a line between the pressure indications recorded in steps AA. and AB. This line shall be parallel with the desired slope.

NOTE: If the angle of the line drawn is greater than the angle of the desired slope, loosen screws (205, IPL Figure 1) and adjust support (200) in the direction of aneroid (220) and tighten screws (205). If the angle is less than the angle of the desired slope, adjust support away from aneroid (220). Repeat steps Z. through AB. until desired slope is achieved. After desired slope is achieved, apply Glyptal to base of support (200) on body assembly (810).

AD. Close valves (C) and (D), Figure 703. Adjust valve (E) for 40,000 feet on altimeter (K). Open valve (LL) and adjust valve (F) for 25 LPM on flowmeter (G). Gauge (MM) shall indicate below 48.0 psia.

AE. Open valve (C) and adjust valve (F) for an indication of 1500 LPM on flowmeter (G). Gauge (MM) shall indicate above 44.0 psia.

AF. Close valve (E), open valve (D) until 20,000 feet is indicated on altimeter (K).

AG. Adjust valve (F) for an indication of 680 LPM on flowmeter (G). Gauge (MM) shall indicate above 12.6 psia. Close valve (E), open valve (D) and return to ground level.

AH. Reset leaf spring (325, IPL Figure 1) and vent all contained gas from system through valve (F, Figure 703).

AJ. Close valves (F), (AA), (EE), and (OO). Open valve (BB). Adjust regulator (JJ) for an indication of 100 psi on gauge (H). Adjust regulator (X) to produce a 2000 psi indication on gauge (I), hold in this condition for two minutes. After two minutes, close valve (BB) and slowly open valve (F) until gauge (H) indicates zero.

AK. Close valves (F) and (LL). Reduce pressure indication on gauge (I) to 500 psi using regulator (X).

AL. Install test cover (12, Figure 901) to unit under test and open valve (AA, Figure 703).

AM. Close valve (D) and adjust valve (E) until control unit turns on automatically.

AN. Adjust valve (E) for an indication of 20,000 feet on altimeter (K).

AP. Slowly open valve (F) and vent system until gauge (H) stabilizes.

AR. Close valves (C), (F) and (LL).

AS. Open valves (EE) and (OO).

AT. Repeat steps W. through AC.

AU. Repeat step AC. as required. If any adjustment of setscrew (160, IPL Figure 1) is required, repeat step AJ., then steps Z. through AG.

NOTE: Steps Z. through AG. must be repeated until unit functions properly after accomplishing step AJ.

AV. Reset leaf spring (325) and vent all pressure from system using valve (F, Figure 703) and regulator (X).

AW. Close all valves and switches, remove the unit from the test stand, remove all test plugs and fittings and complete assembly.

49. Apply Loctite, Grade C, to setscrews (160, IPL Figure 1) and Glyptal to nuts (175), (185) and (320) and bolt (315).

50. Thread detent assembly (265) into block (355) using wrench (1, Figure 901).

51. Place gaskets (50 and 140, IPL Figure 1) and cover subassembly (125) onto body assembly (810) and secure with screws (130) and washers (135). Cover the heads of four corner screws (130) with torque paint.

52. Adjust detent assembly (265) until top is flush with cover subassembly (125).

53. Secure solenoid (30) and wire (455 or 460) to cover subassembly (125) with screws (35) and washers (40). Cover the head of two screws (35) with torque paint.

54. Place insert (555) and setscrew (550) in body assembly (810) to lock cap assembly (545) in place. Cover head of setscrew (550) and side of cap (545) at body (810) with torque paint.

NOTE: To facilitate testing, cover aneroid setscrew (335) port with plastic tape.

55. Test partially assembled control unit in accordance with procedures in Testing, paragraph G.

56. Secure plate (145) to body assembly (810) with screws (150). Cover the heads of the screws (150) with torque paint.

57. Thread union (515) and seal (520) into body assembly (810). Apply torque paint to union (515) and seal (520) at body (810) after assembly.

58. For 803662-01 & -04 and 803663-01 & -04, thread elbow (530), nut (535) and packing (540), previously assembled in step 15, in body assembly (810). For 803662-02, thread reducer (-530A) and packing (540) in body assembly (810). For 803662-13, thread fitting (-531) into body assembly (-815).

59. Storage Instructions

    A. Cap inlet and outlet fittings with protective closures.

    B. Wrap the control unit to prevent dust or other foreign matter from entering. Do not use any preservative coating on the control unit.

FITS AND CLEARANCES

1. Table 801 presents the torque values necessary to assemble the unit.

UNIT	TORQUE lbf. in (N.m)
Retainer (580, IPL Figure 1)	135 (15.26)
Screw (600)	10 (1.13)
Valve Assembly (615)	190 (21.47)
Stem (640)	5 (.57)
Nut (755)	6 (.68)

Assembly Torque Values
Table 801

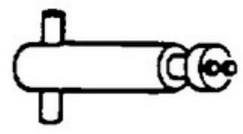
SPECIAL TOOLS, FIXTURES AND TEST EQUIPMENT

1. All special tools, fixtures and test equipment required to overhaul the control unit are listed in Figure 901 and illustrated in Figure 902.

FIGURE 902 ITEM NO.	*PART NUMBER	PART NAME	APPLICATION
1	25316-T91-1	Wrench	Used to remove/install detent assembly (265, IPL Figure 1)
2	25682-T58-1	Leak Test Holding Fixture	Used to leak test cover sub-assembly (125)
3	800801-00-T53-1	Test stand	Used to test the control unit
4	800801-T91-1	Wrench	Used to remove/install valve assembly (750 through 770)
5	800801-T91-2	Wrench	Used to remove/install cap (650)
6	800801-T91-3	Wrench	Used to remove/install cap assembly (545) and retainer (580)
7	800801-T91-4	Wrench	Used to remove/install aneroid (220)
8	800801-T91-6	Wrench	Used to remove/install nut (230)
9	22505-T52-1	Stylus	Used to remove/install preformed packings (90, 235, 370, 410, 420, 500, 510, 540, 585, 645, 655, 725 and 740)
10	- DELETED -		
11	10000728-T52-1	Alignment Tool	Used to align frame (345) with body assembly (810)
12	25682-T58-2	Test Cover	Used during reassembly testing
13	25384-T58-1	Test Plug	Used during reassembly testing

*Manufactured by Scott Aviation, Lancaster, N.Y.

Special Tools, Fixtures and Test Equipment List
Figure 901



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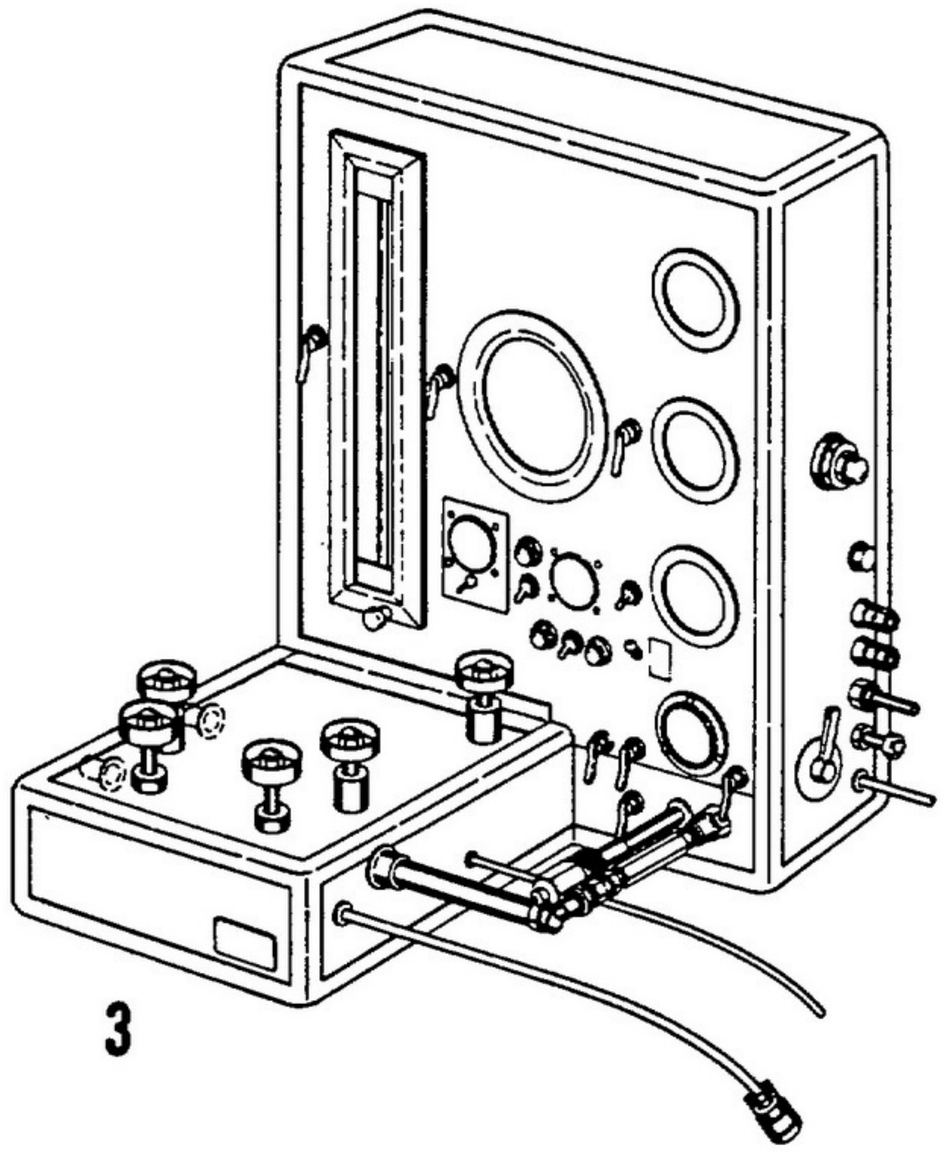

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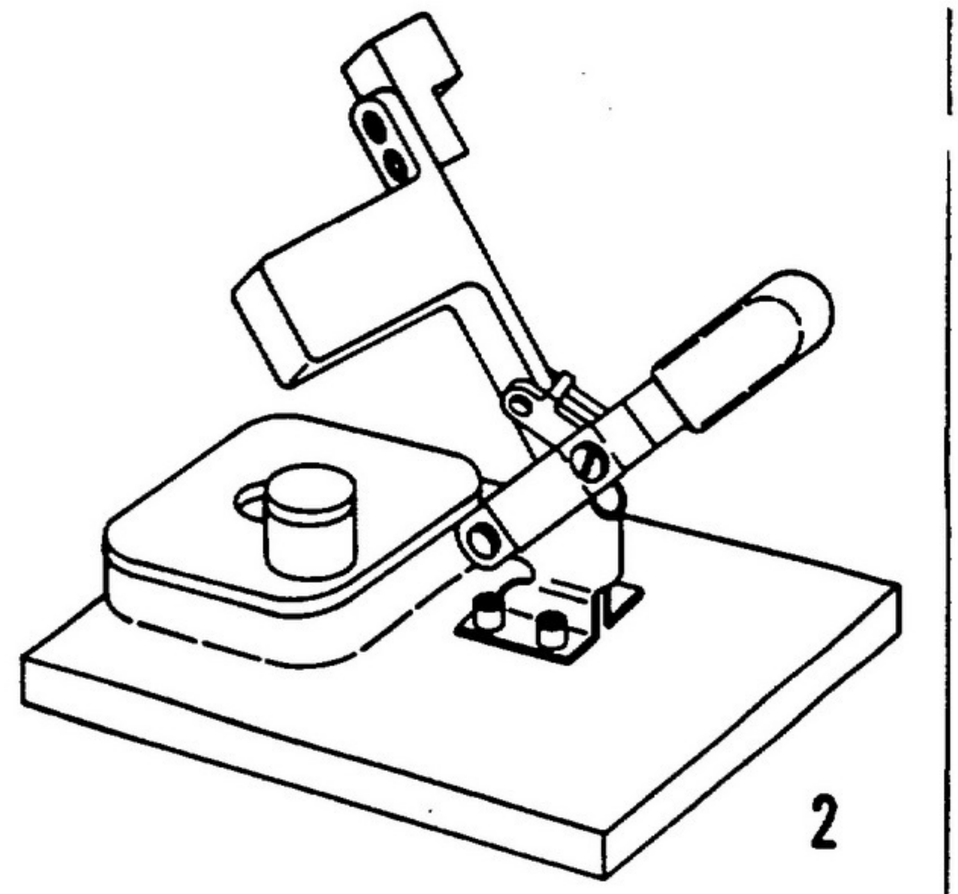

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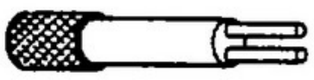

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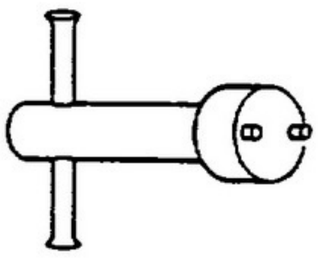

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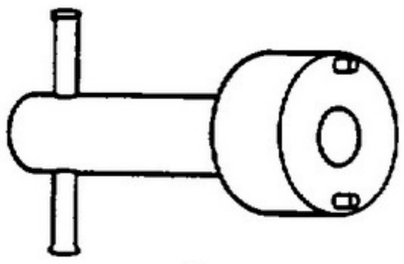

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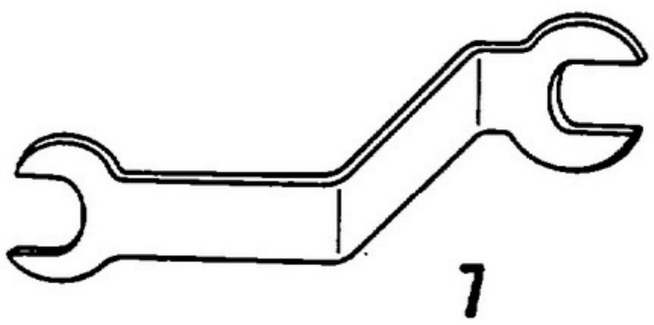

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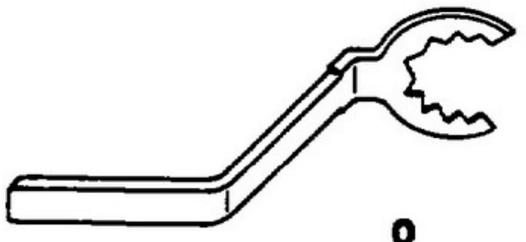

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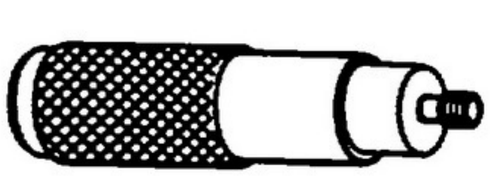

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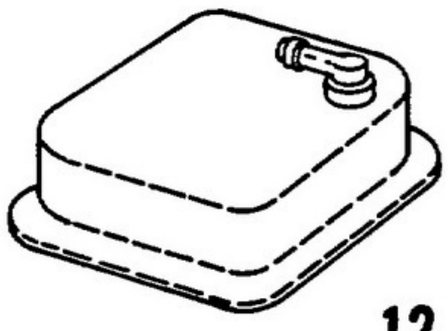

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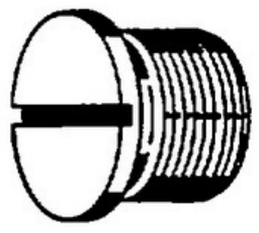


13

Special Tools, Fixtures and Test Equipment
Figure 902

ILLUSTRATED PARTS LIST

1. This Illustrated Parts List covers the 803662-01, 803662-02, 803662-04, 803662-13 and the 803663-01 and 803663-04 Electro-Pneumatic Flow Control Units.

2. Group Assembly Parts List

   A. The Group Assembly Parts List consists of a parts listing and completely indexed exploded view drawing. Each assembly listed is followed immediately by its component parts, properly indented thereunder, to show their relationship to the assembly.

   B. The quantities listed in the "UNITS PER ASSY" column are the total quantity used per control unit at the location indicated.

   C. The part numbers listed in the "PART NUMBER" column are Scott Aviation part numbers except standard parts, which are listed by "AN" and "MS" part number, and vendor parts, which are listed by vendor part numbers. The following list contains the code and name and address of vendors supplying items for the control units including Tables 401 and 701.

VENDOR'S CODES

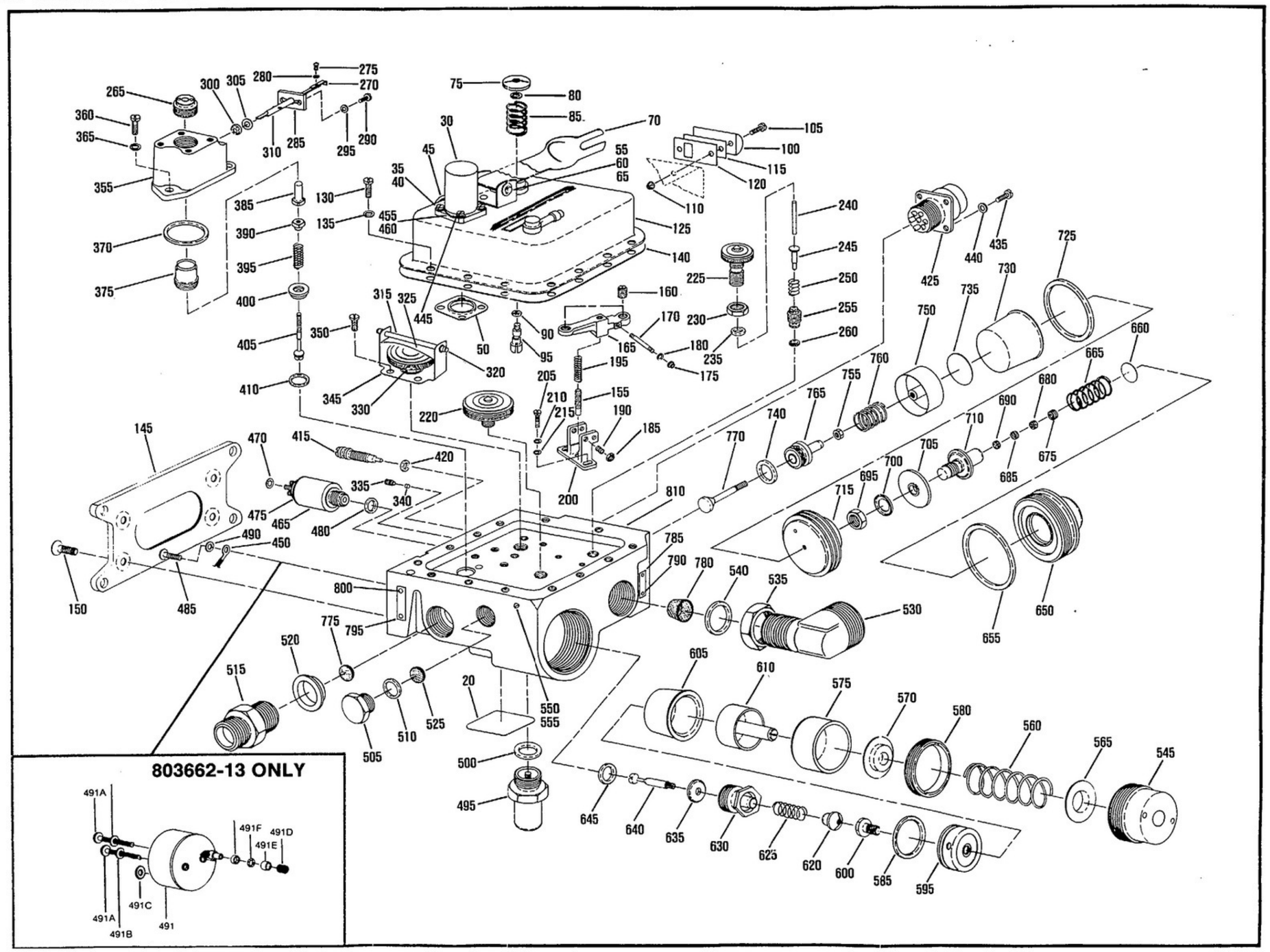
CODE	NAME AND ADDRESS
V00779	AMP, Inc. Harrisburg, PA
V02697	Parker Seal Co. Cleveland, OH
V05972	Loctite Corporation Newington, CT
V07098	Linde Division of Union Carbide Tonawanda, NY
V08800	General Electric Company Insulating Materials Dept. Schenectady, NY
V18034	Nupro, Inc. Willoughby, OH
V18632	Chemplast, Inc. Wayne, NJ

VENDOR'S CODES

CODE	NAME AND ADDRESS
V12179	Navan, Inc. El Segundo, CA
V18873	E.I. DuPont DeNemours & Co., Inc. Wilmington, DE
V72658	Allied Signal, Inc. Morristown, NJ 07962
V82682	Big Three Industries, Inc. Tempil Division South Plainfield, NJ
V91427	B.F. Goodrich Chemical Co. Cleveland, OH
V91784	Hooker Chemical Corp. Niagara Falls, NY

3. How to use this Illustrated Parts List

A. If neither the part number nor the nomenclature is known, the part can be found by comparison with the exploded view illustration. When located on the illustration, the index number will refer to the line in the Group Assembly Parts List with the part number and the nomenclature.



ELECTRO-PNEUMATIC FLOW CONTROL UNIT
FIGURE 1

FIG. ITEM	PART NUMBER	AIRLINE STOCK NO.	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY
1 -1	803662-01		CONT UNIT - ELECTRO-PNEUMATIC	A	RF
-2	803662-02		CONT UNIT - ELECTRO-PNEUMATIC	F	RF
-5	803662-04		CONT UNIT - ELECTRO-PNEUMATIC	B	RF
-6	803662-13		CONT UNIT - ELECTRO-PNEUMATIC	E	RF
-10	803663-01		CONT UNIT - ELECTRO-PNEUMATIC	C	RF
-15	803663-04		CONT UNIT - ELECTRO-PNEUMATIC	D	RF
20	10007557		• PLATE - ID	ABEF	1
-25	10007558		• PLATE - ID	CD	1
30	10001678		• SOLENOID		1
			ATTACHING PARTS		
35	AN500D4-6		• SCREW		4
40	MS35338-40		• WASHER		4
			***		
45	59535-01		• TUBING - PLASTIC		1
50	25397-00		• GASKET		1
55	MS20392-2C25		• PIN	A-DF	1
			ATTACHING PARTS		
60	MS24665-1012		• PIN - COTTER	A-DF	1
			***		
65	AN960-10		• WASHER	A-DF	2
-66	33451-009		• WASHER	A-DF	1
70	25393-13		• LEVER ASSEMBLY	A-DF	1
75	25387-00		• BUTTON		1
80	MS35333-70		• WASHER		1
85	25380-00		• SPRING - HELICAL- COMPRESSION		1
90	2-5COMPS753-70		• PACKING - PREFORMED (P/N 2-5COMP-S753-70-GRN)-(V02697)		1
95	10000725		• PLUNGER		1
100	25307-00		• LENS		1
			ATTACHING PARTS		
105	AN500D2-5		• SCREW		2
110	H14-02		• NUT (V75237)		2
			***		
115	25383-00		• PLATE - LENS		1
120	25382-00		• GASKET - LENS		1
125	801194-01		• COVER SUBASSEMBLY	A-DF	1
126	801194-02		• COVER SUBASSEMBLY	E	1
			ATTACHING PARTS		
130	33359-213		• SCREW		13
135	MS35333-70		• WASHER		13
			***		
140	24509-00		• GASKET - COVER		1

- ITEM NOT ILLUSTRATED

FIG. ITEM	PART NUMBER	AIRLINE STOCK NO.	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY
1					
145	24686-01		• PLATE - MOUNTING		1
			ATTACHING PARTS		
150	59626-00		• SCREW		4
			***		
155	25477-00		• SETSCREW		1
160	10002610		• SETSCREW		2
165	10007548		• LEVER		1
			ATTACHING PARTS		
170	10001786		• PIN - LEVER		1
175	H14-02		• NUT (V75237)		2
180	AN960-3		• WASHER		2
185	MS35649-244		• NUT		2
190	10001801		• SETSCREW		2
			***		
195	25306-00		• SPRING -		1
			HELICAL - COMPRESSION		
200	10007549		• SUPPORT - LEVER		1
			ATTACHING PARTS		
205	33359-228		• SCREW		2
210	MS35333-71		• WASHER		2
215	MS15795-805		• WASHER		2
			***		
220	10001572		• ANEROID		1
225	10001571		• BELLOWS ASSEMBLY		1
230	AN316C5		• NUT		1
235	MS9068-902		• PACKING - PREFORMED		1
240	10001631		• PIN - PUSH		1
245	28846-1		• STEM		1
250	10001793		• SPRING -		1
			HELICAL - COMPRESSION		
255	800874-00		• SEAT ASSEMBLY		1
260	10001635		• GASKET		1
265	25384-1		• DETENT ASSEMBLY		1
270	25680-00		• INDICATOR		1
			ATTACHING PARTS		
275	AN520-0R3		• SCREW		1
280	MS27183-1		• WASHER		1
			***		
285	25394-00		• PLATE - PIVOT		1
			ATTACHING PARTS		
290	33359-213		• SCREW		2
295	MS35333-70		• WASHER		2
			***		

- ITEM NOT ILLUSTRATED

FIG. ITEM	PART NUMBER	AIRLINE STOCK NO.	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY
1					
300	25736-00		• WASHER - SEAL		1
305	25723-00		• WASHER - BACKUP		1
310	25304-3		• LEVER ASSEMBLY		1
315	3501-01		• BOLT - TIE		1
			ATTACHING PARTS		
320	58526-00		• NUT		2
			***		
325	10001645		• SPRING - LEAF		1
330	10002609		• ANEROID		1
			ATTACHING PARTS		
335	AN565AC4H4		• SETSCREW		1
340	2837-2		• INSERT - NYLON		1
			***		
345	10001656		• FRAME		1
			ATTACHING PARTS		
350	MS33359-213		• SCREW		4
			***		
355	10001657		• BLOCK - MOUNTING		1
			ATTACHING PARTS		
360	AN500D4-5		• SCREW		3
365	MS35333-70		• WASHER		3
			***		
370	MS9068-020		• PACKING - PREFORMED		1
375	10001643		• HOUSING - VALVE		1
-380	803823-01		• VALVE ASSEMBLY - ACTUATION		1
385	10001644		• • NUT - CAP		1
390	25698-00		• • NUT - LOCK		1
395	25481-00		• • SPRING - HELICAL - COMPRESSION		1
400	803808-01		• • SEAT		1
405	10873-00		• • STEM		1
410	MS9068-012		• PACKING - PREFORMED		1
415	10001669		• SCREW - ADJUSTING		1
420	MS9068-008		• PACKING - PREFORMED		1
425	801332-00		• CABLE ASSEMBLY	ABF	1
-430	MS24264R14B7PNX		• CONNECTOR ASSY - ELECTRICAL	CD	1
-431	800798-00		• CABLE ASSEMBLY	E	1
			ATTACHING PARTS		
435	MS33359-213		• SCREW		4
440	MS35333-70		• WASHER - LOCK		4
			***		

- ITEM NOT ILLUSTRATED

FIG. ITEM	PART NUMBER	AIRLINE STOCK NO.	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY
1					
445	321017		• LUG - TERMINAL (V00779)		1
450	321020		• LUG - TERMINAL (V00779)	ABEF	1
455	50336-02		• WIRE - ELECTRICAL	ABEF	1
460	50336-01		• WIRE - ELECTRICAL	CD	1
465	10001677		• SWITCH - PRESSURE (TERMINAL NUTS SUPPLIED)	ABEF	1
			ATTACHING PARTS		
470	1902-00		• WASHER - LOCK	ABEF	3
475	10001928		• DISC - INSULATION	ABEF	AR
			***		
480	MS9068-903		• PACKING - PREFORMED	ABEF	1
485	AN526C632R4		• SCREW	ABEF	2
490	MS35333-71		• WASHER		2
491	10001695		• TRANSDUCER - PRESSURE	E	1
			ATTACHING PARTS		
491A	33324-034		• SCREW	E	2
491B	MS35333-71		• WASHER	E	2
			***		
491C	1902-00		• WASHER	E	3
491D	6472-82		• FILTER - SCREEN	E	1
491E	22151-01		• SLEEVE	E	1
491F	55626-00		• PACKING - PREFORMED	E	1
491G	22152-01		• RING - BACKUP	E	1
495	800860-00		• VALVE ASSEMBLY - RELIEF		1
500	MS9608-908		• PACKING - PREFORMED		1
505	25288-00		• PLUG - TEST		1
510	MS9068-902		• PACKING - PREFORMED		1
515	MS21902-5C		• UNION	A-DF	1
520	VD261-0109-0105		• SEAL - BOSS (V12179)	A-DF	1
525	8820-4		• FILTER		1
530	10003401		• ELBOW	A-D	1
-530A	10003806		• REDUCER - EXTERNAL THREAD	F	1
531	25886-00		• FITTING - OUTLET	E	1
535	AN924-8D		• NUT	A-D	1
540	MS9068-908		• PACKING - PREFORMED		1
545	800855-00		• CAP ASSEMBLY		1
			ATTACHING PARTS		
550	AN565AC4H4		• SETSCREW		1
555	2837-2		• INSERT - NYLON		1
			***		
560	10001639		• SPRING - HELICAL - COMPRESSION		1
565	10001722		• WASHER -THRUST		1

- ITEM NOT ILLUSTRATED

FIG. ITEM	PART NUMBER	AIRLINE STOCK NO.	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY
1					
570	10001723		• WASHER - THRUST		1
575	10001626		• SLEEVE		1
580	10001627		• RETAINER -SLEEVE		1
585	MS9608-021		• PACKING - PREFORMED		1
-590	8000856-00		• DIAPHRAGM ASSEMBLY		1
595	10001724		•• DAMPENER		1
			ATTACHING PARTS		
600	10001624		•• SCREW - HOLD-DOWN ***		1
605	59317		•• BELLOFRAM		1
610	10001641		•• PISTON		1
-615	800850-00		• VALVE ASSEMBLY		1
620	10001629		•• HEAD - STEM		1
625	10001721		•• SPRING - HELICAL - COMPRESSION		1
630	800849-00		•• GUIDE ASSEMBLY		1
635	10001623		•• SEAT - VALVE		1
640	10001633		•• STEM - VALVE		1
645	3-5COMP77-545		• PACKING - PREFORMED (V02697)		1
650	10001694		• CAP - SURGE VALVE		1
655	2-29COMP-S604-7		• PACKING - PREFORMED (V02697)		1
660	25882-00		• DISC - SLIP	ABEF	1
665	25286-00		• SPRING - HELICAL - COMPRESSION	ABEF	1
-670	25530-2		• ORIFICE AND DIAPHRAGM	ABEF	1
675	55573		•• SETSCREW	ABEF	1
680	8938-1		•• SCREEN - FILTER	ABEF	1
685	20489		•• PACKING - GLASS - WOOL	ABEF	AR
690	8938-1		•• SCREEN - FILTER	ABEF	1
695	25532		•• NUT	ABEF	1
700	25533		•• RING	ABEF	1
705	25883		•• DIAPHRAGM	ABEF	1
710	25531-1		•• ORIFICE ASSEMBLY	ABEF	1
715	10001630		• SEAT	ABEF	1
-720	10001634		• PLUG	CD	1
725	MS9068-028		• PACKING - PREFORMED		1
730	59334-00		• BELLOFRAM		1
735	10001632		• PLATE - DISC		1
740	2-15COMP77-545		• PACKING - PREFORMED (V02697)		1

- ITEM NOT ILLUSTRATED

FIG. ITEM	PART NUMBER	AIRLINE STOCK NO.	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY
1					
-745	800853-00		• VALVE ASSEMBLY - FLOW CONTROL		1
750	10001636		•• PISTON		1
755	MS35649-244		•• NUT		1
760	10001647		•• SPRING - HELICAL - COMPRESSION		1
765	800854-00		•• GUIDE AND SEAT ASSEMBLY		1
770	10001649		•• STEM		1
775	8820-3		• FILTER		1
780	25711-00		• SCREEN		1
785	25297-00		• PLATE - OUTLET		1
			ATTACHING PARTS		
790	MS21318-1		• SCREW -DRIVE ***		2
795	25297-1		• PLATE - INLET		1
			ATTACHING PARTS		
800	MS21318-1		• SCREW -DRIVE ***		2
-805	801331-00		• BODY ASSEMBLY	ABF	1
810	800885-01		• BODY ASSEMBLY	CD	1
-815	800885-02		• BODY ASSEMBLY	E	1

- ITEM NOT ILLUSTRATED